

RECORD

F.R. Losberg

Collection and Field Note Book

No. 35

(September 5th, 1951 - January 25, 1952)

(1951 - 1952)

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Collection and Field Note Book

No. 31

(December 24, 1951 - January 27, 1952)

(33908 - 34141)

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Labels to bring to Durpent
plain - plain maians

Saintpaul
Falgan

Lichen
wrongly numbered

3405^9

a thin nostor - like
lichen on coconut
bark

obviously from a
reasonably wet atoll
(poss. Upas - Bock?)

books 31

begin 33908

end 34141



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1951 Marshall Is.
Ailuk Atoll.

1

61

Dec. 24 - anchored in center of
lagoon, opposite main
passage, in 23 fathoms.

Made sketches of outlines
of islets, in order, clock-
wise, as seen from flying
bridge of ship.

Vial 51 - parasitic isopod
taken from gills of *Serranus*
flavocaelatus ~~was~~ caught
on bottom (ref. Hiyama,
p. 45, pl. 18 fig. 49, 1950). stomach
distended with blood.

This distension increased
somewhat in the preservative,
some blood being squeezed
out of mouth.

tent.

2
by
ing".

Dec. 25 - near center of lagoon.

22903 *Caulerpa bikinensis* Taylor (det. Taylor 1955)
pulled from bottom in 27 fathoms by fishline.

Dec. 26 - in south ~~coastal~~
part of lagoon, a flock of perhaps 100 noddies (possibly white-capped) were fishing. Also a few fairy terns.

22904 *Aegialia* Islet
Lagoon side planted to coconuts, open beneath, with *Lepturus*, patches of *Euphorbia chamaissoides*, scattered trees beneath - *Pandanus*, *Ochrosia*, *Guettarda*, etc.

22909 *Luriana maritima* L.
occasional along lagoon beach in sand.

22910 *Pisonia grandis* R. Br.
occasional near north beach, common in mixed forest

22911 *Terminalia samoensis* Rech.
common along north beach

22912 *Soulamea amara* L.
common along inner part of north beach, scattered inland

det. F. R. Fosberg

green, rhizomes terete.

Gecko - ~~big~~ "wadap"
green lizard - "aweb"

No.

22913 - houseflies - very numerous and attacking ravenously anyone landing. very persistent. Apparently associated with hogs.

shrub 1 m. tall.

medium sized

"kangl"
shrub 1.5 m. tall (others seen trees 3 m. tall with distinct trunk), fruit dark red, fleshy, subterete. "kekung".
shrub 3 m. ~~disse~~ tall.

No.

det. F. R. Fosberg

Dec. 25 - near center of lagoon.

23908 *Caulerpa tikinensis* Taylor (det. Taylor 1955)
pulled from bottom in 27 fathoms by fishline.

Dec. 26 - in south ~~east~~
part of lagoon, a flock of perhaps 100 noddies (possibly white-capped) were fishing. Also a few fairy terns.

Abulue
Dec. 26 - Agulue Islet
Lagoon side planted to coconuts, open beneath, with *Lepturus*, patches of *Euphorbia chamaissensis*, scattered trees beneath - *Pandanus*, *Ochrosia*, *Guettarda*, etc.

2 09 *Buriana maritima* L.
occasional along lagoon beach in sand.

2 10 *Pisonia grandis* R.Br.
occasional near north beach, common in mixed forest

1 11 *Terminalia samoensis* Rech.
common along north beach

6 12 *Soulamea amara* L.
common along inner part of north beach, scattered inland

green, rhizomes terete.

Gecko - ~~skip~~ "wadaf"
green lizard - "aweb"

Viral 53 - houseflies - very numerous and attacking ravenously anyone landing, very persistent. Apparently associated with hogs.

shrub 1 m. tall.

medium sized

"kangl"
shrub 1.5 m. tall (others seen trees 3 m. tall with distinct trunk), fruit dark red, fleshy, subterete. "kehung".
shrub 3 m. ~~disco~~ tall.

233913 *Polyppodium scolopendria* Burm. f.
local near north beach,
common in center of island,
terrestrial

3 14 *Ochrosia oppositifolia* (Lam.) K. Schum.
common, scattered in
center of island, making
an important part of
scrub on inner north beach

2 15 on base of coconut tree

2 16 on charcoal on half-burned
tree-trunk

1 17 *Polyphorus cinnabarinus*
on ~~dead~~ coconut husk

2 18 on ~~dead~~ coconut leaf petiole

Coconut grove on lagoon side
of islet, grass, mainly *Lepturus*,
~~and~~ *Euphorbia chamaesola*,
~~and~~ *Euphorbia heterophylla*,
~~and~~ *Euphorbia amabilis*,
ground cover, scattered
trees of *Ochrosia*, ~~and~~ *Pandanus*
and *Guettarda*. One deep
but small old taro pit
with coconuts growing in
bottom. Inner two thirds of
north beach, and all of lagoon
beach sandy, recently
ripped by waves leaving
a vertical wall 0.3-0.5 m. high
of sand and small gravel.

rhizome prostrate, ponds
erect.

tree up to 10 m. tall,
flowers white; fruit
immature.

bright vermillion

This lined around n.e. point
by a mixed scrub
of *Haematoxylum*, *Messerschmidia*,
Pandanus, *Terminalia*, ~~Ochroma~~, *Salanea*, etc.
Distal third and an equivalent
stretch of s.w. beach lined
with beach-rocks, dipping
away from island, backed by
an enormous boulder-ridge,
with broad flat top and sharp
fragments on north beach, rampart
backed by broad flat and water
rounded fragments on s.w. beach.
Large boulders scattered some
distance inland from this. (n. 6)

6 1951 Marshall Is.

Dec. 24 - Ailuk Islet

33919 *Halimeda*
1 on deepest part of reef flat
on gravel covered by thin layer
of sand.
2 20 *Halimeda*
rooted in sand and gravel *in reef flat*
3 21 *Euphorbia chamaissoides* Boiss.
abundant ~~on~~ grassy, sandy
open point.
4 22 *Thunbergia involucrata* (Forst.) R. & S.
abundant on grassy
sandy open point
5 23 *Lepturus repens* (Forst.) R. Br.
abundant on grassy
sandy open point.

Other part. Part of the tops of these ridge
completely bare of vegetation,
mostly covered by mixed
scrub or forest of *Messerschmidia*, *Pisonia*, *Scaevola*
and *Guettarda*, this forest
extending back as far
as the extent of the scattered
boulders.

Outer half of island
largely open, with
Fimbristylis, *Lepturus*, *Digitaria*,
etc., scattered patches
of scrub and trees. Coconuts
have been planted here
but few are left. Soil
generally ~~soil~~ more or less

Ailuk Atoll

7

blue-green
stems ascending,
prostrate, rhizome,
brittle, fruiting branches
erect.
loose tufts
[*Polypodium* rare in ground cover on
north part, abundant in center.
unaltered sand.
some evidence here and
there of burning.
several golden plover in
openings.
2 reef herons on outer beach,
1 dark, 1 mottled white + dark.
3 turnstones.

Many hogs + one cat seen.
Hog rootings abundant
all over part of island seen.

Euphorbia heterophylla and
Canavalia microcarpa seen here,
not collected; not seen elsewhere on atoll.

8 (1951) Marshall Is.

Dec. 27 Ailuk Islet
a patch of 15 twinstones
in exposed ~~on~~ lagoon
reef flat at low tide.
Several golden plovers
in coconut grove,
native name "holij".
Fairy terns seen flying.
Chickens, dogs, cats, hogs
seen. Also *Rattus exulans*.

33924 *Artocarpus altilis* var.
on boulder flat 55' from
high tide mark on ^{south} west beach.

25 on leaves of breadfruit

26 *Calophyllum inophyllum* L.
single tree near lagoon
beach.

27 *Pandanus tectorius* Park.
common everywhere, this
from small grove on point
~~on~~ on lagoon beach.

28 ^{det. Neil} *Microdictyon okamurae* Setch. (det. Taylor 1955)
on outer reef- flat back
from *Lithothamnion* ridge

29 on base of coconut tree ^{Johnst.}
30 *Messerschmidia argentea* (L.) Pln.
in sparse scrub on outer beach

31 *Boerhaavia diffusa* L.
common locally in interior
of island.

Ailuk Atoll

9

tree 10 m. tall, 15 cm. thick;
seedlings beneath tree, with
old seed coats attached.
black coating on leaf surface
small spreading tree;
sterile.

small spreading tree.

shrub 2 m. tall, leaves
silvery green, fleshy;
flowers white.
prostrate, leaves grayish
green, white beneath;
flowers pink.

33 32 *Triumfetta procumbens* Forst. v
common on open sand of
outer beach.

5 33 *Scaevola frutescens* (Mill.) R. v
principal component of
outer beach scrub

5 34 *Guttarda speciosa* L.
common in outer beach scrub

2 35 *Polyphorus cinnabarinus*
on dead *Pandanus* trunk

5 36 *Cassytha filiformis* L.
very common on grass and
bushes in coconut grove

5 37 *Boehmeria*.
occasional generally

6 38 *Tacca leontopetaloides* (L.) O. K. ^{type}. v
very common generally
in ~~of~~ coconut grove

5 39 *Fleurysta nuderalea* Gaud.
~~on~~ on rather bare places
in open part of coconut grove

5 40 *Portulaca samoensis* v. Poelln.
on bare spots generally

5 41 *Fimbistylis cyathosa* R. Br.
common in ground cover generally

prostrate, elongate,
flowers yellow.
"atat"

brush 2 m. tall;
leaves bright green,
flowers white with
purple lines; fruit white,
soft fleshy. "Kannat"
dense shrub, flowers
white.

bright vermillion.
forming dense mats,
green to yellow; flowers
white.

prostrate, leaves stiff,
glossy, white beneath,
flowers pink.

leaves and scapes erect;
flowers green, filiform
bracts purple. "mohemole"
~~water~~ stands from tubers
eaten very common,
mixed with pandanus
pulp, or with coconut
to make puddings.

erect, stems fleshy,
red.

prostrate, leaves fleshy,
compressed; flower yellow,
stamens 10-15.

tufted leaves stiffish.

73942 *Pomoea tuba* (Schlecht.) Don
 5 generally distributed
 on ground and tangled in
 thickets in coconut grove

5 43 *Centella asiatica* (L.) Urb.
 local on mounds between
 long abandoned taro pits

5 44 *Crassostis amabilis* (L.) W. & A.
 locally abundant on
 paths and in open places

5 45 *Cladodendrum inerme* (L.) Gaertn.
 forming low thickets
 generally through coconut
 grove.

5 46 *Digitaria microbaudii* (Presl) Henr.
 common, locally forming
 ground cover

5 47 *Suaeda maritima* L.
 common on outer edge of
 beach scrub

48 Reef flat ~~with~~ west of
 islet

3 ⁴⁸ *Halimeda*
 each { 49 on *Porites* coral colony, attached
 50 to surface, ~~to~~ usually in
 cavities on under side.

5 51 *Halimeda*
 on coarse sand or fine gravel
 well out on reef flat,
 among *Porites* colonies.

5 52 ~~Microdictyon~~ *Dictyosphaerium cavernosum* (Forssk.) ^{green}
 under side of *Porites* colonies Børg (det. Taylor 1955)

extensive vine,
 flowers white.

rhizome creeping,
 leaves erect.

in tufts, culms spreading,
 panicle ascending.

low as rambling shrub.
 flowers white with 6
 narrow purple stamens
 and style.
 weakly erect.

shrub 1-2 m. tall.

gray-green

gray-green.

32-100-
Pocockiella variegata Lamx Papenf. (det. Taylor 1955)
on under side of Pouter, colony.

32-100-
Eusarcus serrulata (Forssk.) J. Ag. (det. Taylor 1955)
on under side of Pouter, colony
in coconut tree, tree.

Vial 54 - ~~houseflies~~ Solenopsis
ants, climbing breadfruit
tree in village.

Vial 55 - ants found on
coconut tree, large ant
found on side of well.
Caterpillars on ground,
all near center of island
in coconut grove.

Vial 56 mealy bugs, tiny ants
associated on ripe Pandanus
fruit. Sarcophagid fly
attracted to this fruit,
all near center of islet in coconut
grove

Vial 57 - ant and pseudoscorpion
found near camp on sandy
point. ant around opened
coconut, pseudoscorpion
on beach below high tide,
probably blown off of
nearby Pandanus or
shaken off of grass
pulled up nearby.

Vial 58 - on ground (isopod
and tiny wasp.)

Dec. 20 - Aitutaki Islet
In coconut grove near
center of islet

33955 *Morinda citrifolia* L.
" occasional

2 56 *Crinum*
several plants here,
probably planted; commonly
planted in village and
around dwellings.

4 57 *Antocarpus*
rare out this far from village

1 58
^{with leaves} or wall of well and on wooden
box used as well curb.

In and around village
near dwellings

- 59 *Polyscias scutellaria* (Burm.f.) Fosb.
single plant, planted ~~near~~ tree
(a few others seen elsewhere)

60 *Mirabilis jalapa* L.
planted

7 61 *Gliricidia sepium* L.
scattered saplings here

8 62 *Asclepias curassavica* L.
planted in garden

shrub 2 m. tall.
- flowers white.
- racemose, leaves
reaching to 1 m height,
peduncle slightly
compressed, rounded
at edges.

tree 10 m. tall, almost
all leaves entire, a few
slightly lobed.
light dull tan color.

shrub ~~to~~ 2 m. tall,
leaves very concave,
- sterile.

spreading, much branched
herb, nodes swollen,
flowers pink, closed
in mid-afternoon.

slender unbranched
tree 10 m. tall, spreading
sparsely. (Other seen much
larger)

sub-shrub, leaves gray green,
flowers fragrant.

18 1951 Mandarao Is.

377 *Briza decipiens* R. Br.
one plant seen, in
house in village - not
common

4 67 *Bruguiera elongata* (L.) Merr.
a few plants in
ditches and canals

5 *Musa sapientum* L.
a few plants growing
in small depressions
near houses

16 *Macaranga subcordata*
a small tree in village
houses

5 67 *Cyperus odoratus* L.
common in old taro pits

2 68 *Cyrtosperma chamissonis* (Schott.) Merr.
a few plants, persisting

5 69 *Eleocharis obtusa* (Witt.) Schult.
abundant in old taro pits.

2 70 *Alocasia macrorhiza* (L.) Schott
small colony in village

5 71 *Eleusine indica* (L.) Gaertn.
occasional in waste spots

2 72 *Glucerna glauca* (L.) Benth.
one plant beside house

2 73 *Pseuderanthemum carruthersii* (Sear.) Griseb.
2 ~~stately~~ plants seen.
around house

2 74 *Rhoeo discolor* (L'Her.) Hanx
planted near house

2 75 *Asclepias curassavica* L.
around dwellings

✓ forming dense sod

✓ scattered in taro

✓

✓

✓

✓

✓

✓

✓

Arbels Atoll

19

shrubby tree 4 m. tall
around village houses
flowers light green
small tree 3 m. tall
flowers white
in salmon patches
sterile.

small tree 4 m. tall
very lactiferous;
flowers white with
yellow center

Cyrtosperma merkusii (Hassk.) Schott
det. D. H. Nicolson (HS) 6/1998

petioles somewhat
mottled, without prickles,
tufted
sterile.

shrub 1 m. tall, sterile.

caespitose, leaves
purple beneath; flowers
white.
flowers orange

20 1991 Marshall Is.

33976 *Hymenocallis littoralis* (Burm.) Sabine
commonly planted in village

5 77 *Acalypha wilkesiana* Muell.-Arg. v.
planted in village

2 78 *Catharanthus roseus* (L.) Don
planted near houses

2 79 *Ocimum sanctum* L.
commonly planted

2 80 *Artocarpus altilis* (Park.) Fosb.
very common in village

5 81
on ground, edge of village

2 82 *Halimeda*
with ~~water~~ on reef flat near outer edge
growing on reef-rock floor

Dec. 30 Marnipuru Islet

5 83 *Wedelia biflora* (L.) DC.
on sand flat just above
lagoon beach under coconuts
one colony seen.

Dec. 30 - Uriqa Islet

5 84 *Pemphis acidula* Forst.
abundant on ~~passage~~
beaches

2 85 *Messerschmidia argentea* (L.) H.
common in mixed scrub
on seaward side.

Gilulu Atoll

21

flowers white
shrub 3 m. tall,
leaves red but chlorotic.
flowers pink
very aromatic
tree 15 m. tall,
sterile

gray-green, white edges

prostrate, sprawling,
flowers yellow.

shrub 1.5 m. tall, (others
seen up to 5 m.); flowers
white

shrub 2.5 m. tall,
fruit clusters pendent,
fruits ripe, almost
dry, falling easily.

22 1961 - Marshall Is.

Vial 59 - grasshopper + orb-weavers from islets n. of Ailuk I. flies from islet n. of Banejin I.

Vial 60 - bottom layer - animals from under stones in coconut grove on Uriga I. - second layer crab from top of beach and other animals from beating Messerschmidia on islet n. of Banejin I.

Vial 61 - bottom layer - ants from opened coconut that had been lying all night, also from open C ration can, on Uriga I. second layer - animals from beating ~~Scavo~~ ^{Scavo} on islet n. of Banejin I.

Vial 62 - animals from beating Guettarda speciosa on islet n. of Banejin I.

Vial 63 - animals from beating Suriana on islet n. of Banejin.

Vial 64 - animals, incl. hermit crabs from beating *Pemphis* on islet n. of Banejin.

Ailuk atoll

23

Dec. 31 - Islet north of Banejin - low islet, flat reef-rock on seaward side, sand on lagoonward side, these areas separated by a transverse depression partially covered at high tide. Lower portion of the reef-rock platform washed by sea water at high tide, but supporting many dwarfed *Pemphis* bushes.

Plants seen on this islet:
Scavo *putescens* ab.
Pemphis aculeata ab.
Guettarda speciosa com.
Messerschmidia argentea com.
Cassytha filiformis occ.
Lepturus repens occ.
Fimbristylis cymosa occ.
Pandanus tectorius ^{rugged} _{on rock.}

Jar #6 - lizards, except large geckos, from Ailuk Islet - green ones from coconut trees, skinks mostly on ground. ~~go~~ Large geckos from coconut tree on Banejin Islet. Land crab attracted to coconut meat on Uriga I. Flat crab well above h.t. on islet n. of Banejin. Hermit crabs above h.t. on sand on Banejin?

24 1957 Marshall Is.

Dec. 31 - Passages north
of Eniwememan Islet

33986 *Liagora hawaiiana* Batters (det. Taylor 1955)
caught on rocks below
low tide level on reef in
passage

87 *Liagora valida* Harvey (det. Taylor 1955)
caught on rocks below
low tide level on reef
in passage.

Dec. 31 Eninibagi Islet

88 *Caulerpa serrulata* (Forssk.) J. Ag.
(with MacNeil) creeping on reef flat
79. MacNeil
on lagoon side

Dec. 27 - On east side of
Ailuk Islet on beach is
considerable pumice,
in various sized
fragments. The beach
vegetation here is entirely
sea-avola. Several root
balls with pumice
within them found
here, one still attached
to sea-avola roots. These
and some free pumice
are in bag #37.

Ailuk Atoll

25

bright pinkish red

purpleish red

(det. Taylor 1955) green

Vial 65 - insects caught
about lights on ~~the~~
Ailuk Islet. Scorpion
caught by Mr. Yamamoto
in his bunks on 75367 -
possibly brought from Japan?
(Check identity & distrib.)

Dec. 28 - Ailuk Islet

A spot of an acre or more back of village, beyond the region of old taro pits, is open, characterized by few living coconut trees, these in poor condition, many dead trunks, standing or fallen.

No obvious explanation for this condition, but trees show unusually bad fire damage at base. Blackness of soil suggests addition of charcoal. Perhaps fires caused the condition or perhaps the condition led to unusually bad or frequent fires.

Layer 5 - 3.0-? (hole dug only about 0.8' into this). - very pale brown (10.YR-7/3-8/4) structure - poorly consolidated, crumbling when struck repeatedly with hammer. texture - small gravel with some larger fragments.

A soil profile taken here is as follows:

Profile # 38: 0-3.8' feet +. 5 distinct layers.

Layer 1 - A horizon - 0-1.0' black (5.YR-2/1) structure - loose granular, very friable. texture - sandy loam with some small gravel, grass roots and a few large roots. changing abruptly to

Layer 2 - C horizon - 1.0-1.8' pink (7.5.YR-7/4), spotted with a few black spots of an inch or less diam. structure - loose granular. texture - pure granular sand with a few roots. changing abruptly to

Layer 3 - C horizon - 1.8-2.7' pink (7.5.YR-7/4). structure - compact coarse granular. texture - fine gravel. changing abruptly to

Layer 4 - 2.7-2.95^{3.0} very pale brown (10.YR-7/3) str. compact, friable, slightly plastic when worked. texture - ~~il~~ clay, with clay root impressions changing abruptly to

Birds seen on Aitule

Noddy - (see p. 2) The noddies here seem to be predominantly *Anous tenuirostris* (occasional individuals seen on various islets and flocks in lagoon fishing (see p. 2), but a few *A. stolidus* seen (Kanon I., Tabu I., Inenibugi I. (2), Engelein I., Enijabro I.) One or other species often seen sitting on sand spits and bars.

Fairy terns - seen on or near almost all islets in small numbers (2-3), more over tiny uninhabited northern islets, on islet just north of Banegin one seen nesting, a flock of 15 seen fishing.

Sooty tern - one seen over lagoon near Bigen I., one not so clearly seen at north end of Kafen I.

Black-naped tern (*sterna sumatrana*) - a flock of 12 seen sitting on sand bar with several noddies at north end of Kafen I. Black band around head, continuous with black bill which seemed unusually large, feet not seen well but at least not conspicuously black like bill, back pearl gray, pale. Birds seemed reluctant to fly. When approached closer than 50' would fly a short distance, then settle down again. Finally, after doing this 3-10 times, they flew away, flying low over water. White crown difficult to see at that distance in that light, but undoubtedly there at least in some individuals. Black band more conspicuous than in Mayr's plate.

1951-2 Marshall Is.
Birds. (ctd.)

Frigate Bird - one seen bet. Enao and Enoa Is., two over Banjir, one over Eneikugi? flying.

Golden Plover - seen on almost all islets visited, & common in open groves, in openings, and on reefs at low tide. Relatively tame, could be approached often to 50', more so where walking with chickens. Called "kolej" by natives.

Turnstone - three seen on Aguine on outer beach, flock of 15 seen on lagoon reef flat on Ailuk I. at low tide, a few each on Maruppi, and Banjir I. (see pp. 7-8)

Bristle-thighed Curlew (*Numenius tahitiensis*) - one seen on ~~seep~~ seaward denuded area at low tide on Enejelan I. would not flush, walked ahead keeping distance of about 50'.

Ailuk Atoll

Reef heron - all three phases seen - solitary or two rarely three to an islet.

- white	mottled	Dark
Yappui	Aguine	Aguine
Eneikugi	Yappui	I. n. of Banjir
Enejelan	Urigo	

Although relatively few birds were seen during a few minutes stops on Eneikugi, the general odor of the islet (lee side) suggested that many birds at least roost here. The forests are largely of *Pemphis acidula*.

Sample #39 - fine material from center of almost un-vegetated sand-bar bet. Eneikugi and Bigen, taken to represent typical parent material of soils, unaltered. (Note Variability in texture evident locally not represented by sample, which is from one spot (except fragment of pumice which is from a short distance away).

Sample #40 - hand
from windward base
of dune, held by Scaevola,
on sand-spit, with
numerous nodules
formed by punice
pebbles encased by a
capsule of Scaevola rootlets
from Enefela's Islet.

These nodules were
more abundant here
than elsewhere, literally
hundreds on surface
and more buried
ones in tangles of
Scaevola roots.

Rattus exulans seen
but not caught on Ailuk
Islet and on small islet
north of Burejin I.

Brown *Varasina*-like
butterfly seen only on
Ailuk so far, generally
on islets n. of Ailuk I.,
the common purple + blue
one completely absent.

Ailuk Islet -

West point of island is a sandy peninsula ending in a southward curving sand spit. The spit is bare, the peninsula has scattered clumps of *Pandanus*, a very few coconuts, mostly grass and *Euphorbia chamaissoides*. Grass is *Lepturus*, *Thraupis* and *Tumbistyliis*.

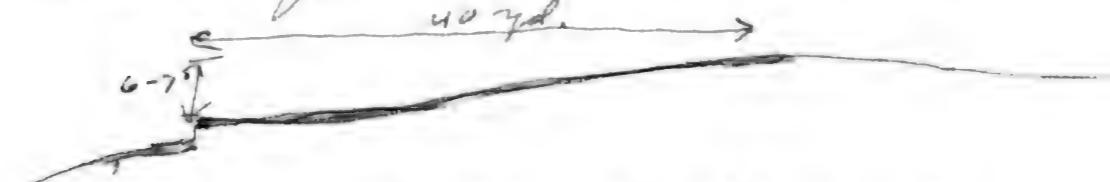
The village stretches along the northwest side, is almost a forest of breadfruit, with some coconut trees, various cultivated plants in yards. Breadfruit extend in numbers back only about $\frac{1}{4}$ distance to outer beach, in smaller numbers a little further. Scattered individuals further out look unhealthy, yellowish, with dead tips. One very healthy tree, however, 55' from h.t. mark on s.w. side on boulder flat (33924).

Southwest beach and south point lined by a broad flat-topped boulder ridge, partly bare of vegetation.

Ipomoea
Tulularia
Ipomoea rotunda
abundantly

with a few scattered trees and bushes of *Guettarda*, *Acacia*, etc. and rather abundant *Fleurya undulata*.

Leeward beach has a ridge of sand and boulders about 40 yds. back from beach - thus:



Along top of beach from n.e. point is a narrow strip of scrub, largely *Acacia*, but with *Guettarda*, *Messerschmidia*, *Fluviaria*, etc. This becomes very sparse about at the ~~south~~ east end of main trail and is so from there southward for the central third of this beach, then denser again to east point.

The island is completely planted to coconuts, in most places more or less thickly. Ground cover is grass and *Euphorbia* - with *Cassytha* fairly generally forming at least thin mats on the grass. *Tacca* is generally scattered

in the groves and is dug and used quite extensively, made into gelatinous puddings of various consistencies, mixed either with pandanus pulp or coconut. Bunches of *Cladodendrum inerme* scattered through groves, sometimes as much as 3 m. tall, very densely tangled and impenetrable without a machete. On this island the undergrowth that appears nowhere coconut plantations are neglected is *Cladodendrum* tangled with *Ipomoea tuba*. They are occasionally cleared and the brush, coconut trash, etc. burned. This may account for the blackness of some of the soil locally.

Portulaca obovata is found wherever bare soil is exposed.

The general color of the soil in the coconut groves is brown. Bare spots usually have a single layer of coral pebbles,

then black soil.

One spot of an acre or two about half way bet. village and ~~south~~ east beach is practically bare of coconuts. A few are still living, but very unhealthy, some dead trunks still standing, some fallen all badly burned about base. Soil black. (profile 38). Hard to tell if fire is cause or bad burning is result of open conditions. Here the grass cover is mostly continuous but rather thin, with *Lepturus*, *Digitaria*, *Fleurya*, *Euphorbia*, *Fimbristylis* and *Eragrostis* in varying abundance. *Cassytha* is practically absent in this spot, though abundant around it.

Back of the village is a large area of old abandoned taro pits of varying shape, not very large, with ridges and mounds between them of as much as 6-7'

above the general level of the surrounding ground. These pits are largely filled with *Clerodendrum* thickets and generally have old coconut trees growing in them.

In the village near its north end this area extends almost to the lagoon, and the two or three pits closest to the lagoon have been recently cleared and planted to *Cyrtosperma*. Now, however, the surface is almost entirely grown over by *Paspalum vaginatum* and some *Cyperus odoratus* and *Eleocharis obtusa*.

Islet north of Ailuk -
Inner two thirds ^{or three fourths} in coconuts, outer fourth a third in mixed forest and scrub, this running along the south passage about half way.

On the north passage is a strip of *Pemphis* scrub.

Yappui Islet -

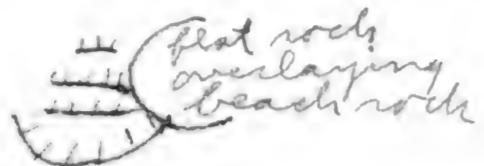
~~Coconuts along~~ in inner two thirds, mixed ~~scrub~~ forest and scrub on outer third and along north passage almost to lagoon becoming sparse at outer end; south passage lined with a wide belt of *Pemphis* growing on rocks. Ground cover in coconut grove very sparse and apparently dry - mostly *Fimbristylis*.

Emersonman Islet -

About half a $\frac{1}{2}$ w. part, covered by coconuts, outer part of this with second story of *Pandanus*, outer part and north passage side with mixed forest and scrub, passage margined

Face
in coconut
grove.
Aero
Clerodendrum

one cove of *Bromelia*
by buriana. In passage
a curious arrangement
of beach rock



Eneao Islet -

Interior coconuts with
second story of *Pandanus* -
Almost surrounded
except on part of Lagoon
beach, by mixed forest &
scrub belt, quite broad
esp. on outer side. D.
s. w. corner coconuts with
under growth of mixed scrub.
surrounded by mixed
scrub, south passage
beach *Scacvola* lined.

Enoa Islet -

Lagoon beach and about
half of islet in coconuts.
Passages and ~~the~~ outer
part of this lined by a
broad belt of mixed forest
and scrub, outside of
this and running in
along north passage,
a broad belt of very sparse
and very young mixture
of *Scacvola* and buriana.

Islets

Islet north of this
apparently rather
similar (but not
noted specifically).

Eminikugi Islet

Inner and south west
half in coconuts, outer
half in mixed forest
and scrub, extending
most of way inward
along south passage
and a broad belt clear
to Lagoon on north passage.

^{None}
small islet north of
Eminikugi -
mixed scrub.

Maruppu Islet

southwest fourth in
coconuts, a few coconuts
on n. w. corner in from
beach, with thick
undergrowth. parts
of island shown as very
sparse on photos now
with well developed
scrub. ~~some *Tempelia*~~
Remainder in dense
mixed scrub forest.
One small colony of *Wedelia* on n. part
of lagoon beach, only one seen in Aitule.

Small islet north
of Maruppi -
Inner end with Pandanus
and mixed scrub,
outer end denuded,
with small shrubs
of furiana and Pemphis
left very sparse.

Uriga Islet -

Largely in coconuts,
across the outer part
of these with a 2nd
story of Pandanus, east
and north and southeast
sides surrounded by
broad belt of mixed forest
and scrub, south passag
beach lined with Pemphis
some trees of this quite
large, 5 m. tall, 3 dm. diam.

Euphorbia chamaesola
scattered patches in
coconut grove.

Depression in the inner center,
with thicket of *Premna*.

Hogs, chickens.

Next two islets, north -

inner parts and lagoon
beach in coconuts, rather
dry but north one at least
with *Yacca* and *Clerodendrum*.
Surrounded on outer + passag

sides by broad belt of
mixed forest and scrub.
Outer point with
very sparse scrub,
that on the south islet
of Pemphis and furiana
the other, *Scorodola*, *Messerschmidia*, etc.

^{Islet}
Chiebeiken Islet -

In the two third in
coconuts, dry, but
with sparse ground
cover of *Lepturus*, *Fimbristylis*
and some *Tacca*. Broad
belt of mixed forest
and scrub on passage
beaches broader on
seaward side.

^{Islet}
Kanon Islet -

Inner half coconuts,
outer part of tree with
Scorodola under brush.
Broad belt of mixed forest +
scrub. Outer point
denuded, with scraps
of *Scorodola* + *Messerschmidia*.

^{Kanon}
Small islet north of Kanon -
a few plants of *Scorodola* and
Messerschmidia and a dead
skeleton of a *Messerschmidia* tree.

Tabu Islet -

s. w. two thirds in coconuts, outer part, a narrow strip along south passage and a broad belt along north passage in mixed forest and scrub.

Islet north of Tabu -
small patch of coconuts in from center part of lagoon beach, surrounded on three sides by broad belt of mixed forest and scrub; outer prolongation denuded, with low scattered shrubs of *Lunaria* and *Pemphis*.

Berengian Islet -

inner third in coconuts, outside this a short belt of *Pandanus*, north part coconuts with second story of *Pandanus*, all surrounded except on lagoon beach by a broad belt of ~~P.~~ mixed forest and scrub, especially wide on seaward side.

Small islet north of Berengian -
very small patch of coconuts surrounded by mixed forest and scrub outer end denuded with some scattered *Messerschmidia* and *Sciaevola*.

Bis Islet -

Patch of coconuts on inner end, passage beachier and outer half in mixed forest and scrub, outer end denuded with scattered small *Pemphis* bushes.

Small islet north of Bis -
about same as Bis, with denuded area completely so except for a small detached patch of *Sciaevola* to seaward of main islet.

Beberappu Islet -

Mixed forest and scrub, but for two small patches of coconuts on lagoon beach and in center. Outer end denuded, with sparse mixed scrub.

Small islet south of Rujerukku completely denuded of soil, bare rock surface with one tiny Scaevola and one tiny *Messerschmidia* bush with roots clinging in cracks. One sprouted coconut lying on bare rock, about some inches tall, no roots.

Old dead stubs and root systems clinging to cracks in ~~old~~ rock, completely without soil.

Rujerukku Islet -

Scaevola scrub on lagoon beach. Coconuts on south passage and most of interior. Broad mixed forest and scrub on outer half with some coconuts in interior. Pemphis along north passage beach out to mixed scrub.

Baujein Islet -

Mostly in coconuts, north part with understory of Pandanus. Broad belt of mixed forest and scrub on passage beaches and seaward side, on south passage changing to ~~coastal~~ Pemphis. Taccia, Euphorbia as well as Heptaxis and Fimbristylis, with much Cyathula, make up ground cover. Much evidence of fire.

Crescent of mixed forest and scrub is mostly Scaevola seaward changing to *Messerschmidia*, Guettarda, Ichrosia, and Pandanus inward. Pandanus scattered in coconut grove. The Pemphis trees along the south passage up to 3 dm. tall, 3 dm. thick. Inside the strip of Pemphis are a few colonies of Polypodium scolopendria, only place seen on Ailuk except aquvel.

Channel north of this islet is narrow but deep, with a constant strong current inward, fordable on bar

at lagoon end at low tide rushing with tremendous force at mid and high tides.

Islet just north of Banjir, covered with mixed scrub. Detail on p. 23.

From here north most observations made from boat in lagoon, except as otherwise noted.

Bet. islet north of Banjir and Alret Islet are nine small islets or sand banks or rocks, only six of which shown on map. ~~The sand~~ All are of sand on a rock platform. Only in the third did platform seem to extend above h.t. except for several very large boulders.

First islet - a few scattered ~~coconut~~ bushes, one *Messerschmidia* living. Scattered dead trees to seaward.

Second islet (Shurungan?) 3 coconut trees, scattered bushes, mostly *Scorodocarpus*.

3rd islet - 4th, + 5th islets - sand, no vegetation.

Sixth islet - mixed scrub with some *Guettarda*, ~~several~~ *Messerschmidia*, mostly *Scorodocarpus*. Many birds flying over it, mostly *Gygis*.

Seventh islet - sand bank covered at h.t. except for a large boulder.

Eighth islet - sand, large boulder on seaward reef.

Ninth islet - one just south of Alret - sparse mixed scrub with five ragged coconut trees.

Lagoon beach with coconuts, extending well back on south side but with strip of mixed scrub along passage. Patch of coconuts well back on north side, surrounded by mixed ~~scrub~~ forest and scrub (surrounded

by a pronounced channel (or aerial photo), broad band of ~~coconuts~~ scrub on seaward side. Rock on southeast corner with sparse *Pemphis* scrub. Much *Pandanus* under coconuts on lagoon side.

¹⁹⁵¹⁻²
Marokku Islet -

Land spit and s.w. beach (bare on photo) with mixed scrub. Most of islet in coconuts, surrounded by a belt of mixed forest and scrub. The n.w. corner a dune. An isolated patch out in sand flat to north. Belt of forest much wider on east and mostly absent for a short distance on south passage.

Kabbo Islet -

5 m. ¹⁹⁵¹⁻² *Pemphis* forest sloping seaward. Central part with patch of *Beaurola* lagoonward, *Pemphis* seaward, a sand strip. Then northern half ~~surrounded~~ coconuts surrounded

except on n. w. corner by mixed forest and scrub, wider on n. e., ~~the~~ narrow on south passage and lagoon beach, there of *Beaurola*. The taller part of *Guettarda* and *Beaurola* immediately back of coconuts.

Next islet north - coconuts in southwest half, surrounded except on central lagoon beach by mixed forest and scrub, very wide on north east and north sides.

¹⁹⁵¹⁻²
Islet south of Enenikugi? - Mixed forest and scrub except for sparse patches of coconuts in form lagoon beach.

¹⁹⁵¹⁻²
Enenikugi Islet -

Landed momentarily on lagoon beach to examine *Pemphis* forest - southern part is mixed forest, central part and n.w. corner *Pemphis* forest 5-7 m. tall, very dense. Remainder mixed forest and scrub except for a

¹⁹⁵¹⁻²
33989 *Pemphis acidula* Forest - dominant in forest on lagoon beach
Enenikugi Islet - mixed
5 m. tall

sparse coconut grove on lagoonward half of north end with understory of Scaevola. Some birds seen, but evidently many roost or nest here, judging from the odds to leeward of forest.

~~Ajirikku Islet~~ ~~at~~ ~~is.~~
Ajirikku Islet ~~at~~ ~~is.~~
Coconut

^{island}
Enearumichi Islet -
south part Pemphis
forest of irregular height
with a patch of mixed
forest ~~is~~ on lagoon beach
south of center. A patch
of coconuts on lagoon
beach and extending diagonally back seaward
to the north, remainder
of island - north west,
north, and for some distance
seaward is mixed forest
and scrub.

Ajirikku Islet - from lagoon
seems to be all in coconuts
except s.w. corner and south
passage beach - photo
shows seaward half in
mixed forest + scrub.

Ajelob Islet -

Coconuts on south half
and small patch ~~is~~
in center of north, lagoon
beach and strip back
of coconuts, as well as
north half in mixed
forest and scrub. This
northern part and
the lagoon beach may
be the Achaatah Islet
of the map, as it is
separated by a diagonal
channel on the photo.

Islet south of Eneman -
small patch of coconuts
extending in form
lagoon beach, surrounded
otherwise by broad
band of wind-beaten
mixed forest and scrub.

Eneman Islet -

In coconuts except south -
west corner and crescent
around back and
north passage beach
which are mixed scrub.
~~broad low mesent~~
Possible to see through
trees to passage beach from
south part of lagoon beach.

small sand islet south of Bigen Islet - scattered small *Messerschmidia* bushes, one small yellow pandanus, on tiny wind-beaten coconut, a few tufts of *Lepturus*. Many seedlings on bare sand and gravel, all *Messerschmidia* and *Lepturus*. Dead leaves accumulated on surface under *Messerschmidia* bushes.

Sample of soil parent material # 39 (p. 31) taken here. Observation made on land.

Bigen Islet - southern extension is a sand-bar very similar to islet described above, with scattered ~~Messerschmidia~~ bushes, probably all *Messerschmidia*. Main part planted to coconuts with scattered pandanus, esp. along lagoon beach. Mixed forest and scrub on both ends, and, judging from aerial photo, on the whole seaward northern part.

small islet south of Bigen.

Mixed scrub with 2 or 3 coconuts, detached pieces of scrub seaward with very sparse scrub between.

Next islet to north - mixed forest and scrub with very few coconuts.

Next islet to north - patch of coconuts surrounded on all except north-west side by broad belt of mixed forest and scrub. Patch of taller *Pemphis* forest on north-east corner.

Next islet north, ~~and~~ - patch of coconuts surrounded by belt of mixed forest and scrub, very narrow on north-west side. Coconuts and ~~so~~ forest mixed south of main coconut grove. One solitary *Messerschmidia* tree on sand bar north side.

Next islet north - bare sand bar, no vegetation.

Enejelan Islet - ^{and examined} on ground.
 long islet mostly
 in coconuts, but with
 belt of mixed forest and
 scrub along seaward
 sides and on ends. Pandanus
 locally lining lagoon
 beach (two stretches, one
 just s. of center, one toward
 north end). Sand spit
 to north covered by seaweed
 scrub except for over
 two bare spots. Sand
 caught by seaweed
 on windward sides and
 piled up as a narrow
 row of dunes to as much
 as 3 m. Bottom of this
 on windward sides
 blown away enough to
 expose extensive seaweed
 root systems. Pumice
 pebbles enclosed in
 capsules of rootlets very
 abundant in these systems
 (sample 40 p. 32). Sand
 fine, white.

Coconut grove on s. end with
 ground cover basically
 of *Lepturus*, with patches
 of *Euphorbia chamaissoides*
 and *Fimbristylis*, scattered
Tacca plants. Second story
 of scattered Pandanus, a few terminalia

Islet just north of
 Enejelan -
 small patch of coconut
 in middle part of
 lagoon side (half
 of n. + s. length of islet),
 surrounded by mixed
 forest and scrub except
 part of lagoon beach.

Enijabro Islet -
 coconut except for
 belt of mixed forest
 and scrub on seaward
 side, rather wide,
 extending around
 on ends of islet along
 passage beaches, and
 onto lagoon beach on
 north end. Patches of
 Pandanus on lagoon
 beach.

Kapen Islet -
 mostly in coconuts,
 with numerous Pandanus
 along lagoon beach except
 north fifth of its length.
 Belt of mixed forest and
 scrub on seaward side,
 extending around onto
 south passage beach, also
 around onto north half of
 (removed) north-west beach.

west corner of island has very sparse coconut grove with almost no ground cover - scattered *Trumfetta*, *Lepturus* and seedlings of *seaavola*, and in west part, some *seaavola* bushes.

The sharp outline of this sparse section as the aerial photo suggests that it is not of natural origin. The impression on the ground is of bare white sand, and obviously this was even more true when photos were taken.

Most of the larger of these islands have hogs and chickens, some seen to have habitations, but many of these seem to be of rather temporary nature - probably only while cutting copra.

Flies are numerous and unbelievably persistent and annoying.

These islets vary in details, ^{of their vegetation,} obviously, because of size, shape, and substratum. [in their vegetatation], but do conform to a ~~general~~ as variations around a general pattern.

The portion toward the lagoon beach is planted to coconuts. This is surrounded by a crescent of mixed forest, very dense, often of Pandanus on the inner edge and in the outer part of the coconut grove. Guettarda, Pandanus, Massachemidia and seaavola make up the taller part, next to the Pandanus and coconuts. This slopes seaward (and windward) becoming more and more a scrub, largely of seaavola. This ~~is~~ the horns of this crescent extend along the passage beaches. There is usually a margin of ~~too~~ Currania or Pemphis or both trees. The outermost convexity is usually a very sparse

beaten-down scrub, often of gnarled bushes of Lemphis and lunaria, sometimes Messerschmidia and Leucaena. This extends into the denuded part of the islet.

Practically all of the islets seem to have had their outer parts denuded of soil by a typhoon or typhoons. Some still show based root systems clinging to cracks in rock.

Crowns and crown sprout of Lemphis, gnarled and beaten down, submerged in sea water at high tide, persist here, with small tufts of Fimbristylis between them.

Plants observed growing where ~~covered~~ bases are covered at high tide were:

Lemphis aculeata

Fimbristylis cymosa

Lepturus repens

Leucaena ~~peruviana~~

Messerschmidia argentea

Guettarda speciosa

The slope from tree forest at edge of coconuts to scrub of the windward is very characteristic of these islets on windward side.

The islets are characteristically separated by expanses of flat solution-pitted and exfoliated reef rock, of conglomeratic or brecciated nature, cut back in deep embayments from lagoon side, often surrounded by low undercut cliffs, tops at about high tide level. Channels from seaward reef flat run into these with a very swift current on rising and high tides. Much fine material is carried lagooward in these. Many of intervening flats are covered by irregular sharp boulders. Some of these may have been deposited here, but mainly they seem to be formed here by the sea dissolving away weathered beds and dissolving along ~~cross~~ bedding cracks until weathered sections of beds collapse and break into

boulders and smaller fragments, which are gradually moved lagomward by inflowing currents at high tide. In edges of ^{the} lagoon this debris, with that from outer reef flats, characteristically forms large deposits at inner ends of passages, bars across channel mouths and debris trains extending inward from corners of islets.

This undermining and breaking process seems to be one of the most important ways by which the rock between tides, and above is being removed, at least when there is much agitation of water.

The explanation of the cutting away of the rock from the lagoon side in passages is not obvious.

Entire period of visit to Airlie - Dec. 23
- Jan. 4 - stiff trade winds,
usually broken clouds, occasional
showers, two or three generally
overcast days.

The windward side of Ailuk seems to have been a continuous platform of reef-conglomerate and ~~occas~~ confused series of beach-rocks, frequently but not always outlining the present islets but at various angles within their outline. The series outlining the islets usually dip ~~with~~ away from the islets toward the passes and lagoons.

This platform is being cut away by solution, abrasion, and ~~collapse~~, undercutting and collapse at present, except where protected by loose material and vegetation.

The Edward reef, on the other hand, seems to have its surface below low tide, with coral masses growing up to about mean low tide, and abundant scattered boulders of all sizes strew over surface, exposed at low tide. corals ^{are} abundant, varied, and beautiful here, algae not very important. [Few islets] ^{out}

Plants seen as seedlings
germinated in drift
at top of beaches (of course
not necessarily of drift
origin):

sabah Lae	<div style="display: flex; justify-content: space-between;"> <div style="flex: 1;"> <i>Scaveola fruticosa</i> <i>Messerschmidia argentea</i> <i>Lepturus repens</i> <i>Quettarda speciosa</i> <i>Corsa numberg</i> </div> <div style="flex: 1; text-align: right;"> <i>Sciaef</i> <i>utinib</i> </div> </div>
Jemo	<div style="display: flex; justify-content: space-between;"> <div style="flex: 1;"> <i>Calophyllum inophyllum</i> <i>Barringtonia apatana</i> </div> <div style="flex: 1; text-align: right;"> <i>Sciaef</i> <i>utinib</i> </div> </div>
Lae	<div style="display: flex; justify-content: space-between;"> <div style="flex: 1;"> <i>Vigna marina</i> <i>luriana maritima</i> <i>Hornoea pes-caprae</i> <i>Morinda citrifolia</i> <i>Hernandia sonora</i> <i>Wedelia biflora</i> <i>Triumfetta protumbens</i> </div> <div style="flex: 1; text-align: right;"> <i>utinib</i> </div> </div>
Lae	<div style="display: flex; justify-content: space-between;"> <div style="flex: 1;"> <i>Intsia bijuga</i> ? <i>Caesalpinia</i> sp. </div> <div style="flex: 1; text-align: right;"> <i>utinib</i> </div> </div>

Jan. 6 - Lae Islet

Golden plovers and turnstones in small numbers and separately on lagoon reef.

Common noddy fairly common.

Fairy tern fairly common.

Crested tern (?) - 4-5 frequent lagoon beach flying around, clumsily for a tern, making a very unmusical noise.

Wandering tattler - two individuals seen, one on lagoon reef, one on seaward reef, not too easily flushed.

Two white reef herons in north passage.

Vial 67 - bottom layer - ants and scorpion from rotting inner portion of newly fallen live breadfruit tree.

top layer - insects from leaves of ~~egg~~ taro plant in taro pit.

Vial 68 - bottom layer - mealy-bugs and attendant ants from under-side of breadfruit leaves - very common. top layer - earthworms from mud in bottom of taro pit.

Jar # 7 - two large red hermit crabs in Turbo shells. 1 gecko, 1 skink, 1 long black lizard, ~~lizard~~ caught by native boy. many skinks caught by native boy (very common everywhere on island).

1 gecko from inside dead sheath on banana plant.

1 loose hermit crab in *Vasum* shell found on trail in front of camp.

Jan. 6 Lae Islet

33991 *Allophylus timorensis* (D.C.) Blume ✓
important constituent of
forest on boulder flat on
east point

92 *Artocarpus altilis* (Park.) Forb.
~~planted~~ in village

93 *Bruguiera conjugata* (L.) Merr.
dooryard, not in wet place
(one seen nearby in wet depression)

94 *Polypodium scolopendria* Burm.f. ✓
common to abundant
generally in coconut groves,
terrestrial.

95 *Caesalpinia*?
seedling in drift on upper part
of lagoon beach

96 *Fimbrina tiba* (Schlecht.) Dr.
seedlings in drift on upper
part of lagoon beach

97 *Hernandia sonora* L.
seedling in drift on upper
part of lagoon beach

98 seedling in drift on upper
part of beach

99 *Fimbrina pex-caprae* (L.) ^{rot} ✓
seedling in drift on
upper part of beach

34000 *Nerium indicum*. oleander, L.
planted in village, one plant seen

tree 6 m. tall, 10 cm. diam.
flowers white; fruit immature.
"katale"

tree 12 m. tall, lactiferous;
seedless variety "mei"
tree 3 m. tall, calyx red.
"jong"

rhizome prostrate,
barely buried. "kino"

many stemmed bush
2.5 m. tall, flowers white,
almost odorless.

34001

5 very common on trunks of coconut trees, especially on lower sides of leaning ones.

2 02 common on tree trunks

2 03 common on coconut trunks

5 04 common on coconut trunks

5 05 common on coconut trunks

3 06 on dead part of partially dead *Artocarpus* trunk

5 07 dry curled up crust on surface of bare coral sand

Jan. 7 - Lae Islet
coconut-breadfruit forest in center of islet.

5 08 *Morinda citrifolia* L. common in undergrowth

2 09 *Tacca leontopetaloides* (L.) A.R. ^{Koske} common on slope of tar pit, common in coconut-breadfruit forest.

5 10 on base of breadfruit tree trunk

3 11 *Premna obtusifolia* ^{obtusifolia} R.Br. rare in forest

5 12 *Canavalia micropcarpa* (D.C.) Piper common in forest.

dense cushions, sterile.

shrub 3 m. tall; "ni"
- flowers white. "ni"
- flowers green, filiform
- bracts purple; tubers
eaten by natives "mohemole"

tree 4 m. tall, sterile;
"kaai"
vine climbing in trees;
flowers magenta,
fragrant. "moorlab"

In ~~old~~ taro pit in center
of island, much soil about 6" deep
34013 *Colocasia esculenta* (L.) Schott
planted in small patches

5 14 *Cyperus odoratus* L.
patches in bottoms of pits

5 15 ~~on~~ on rotting log in much
2 16 ~~in~~ in moss
in rotting log in mud

5 17 ~~on~~ on trunk and buttresses of
breadfruit tree in pit.

2 18 *Cyrtosperma chamissonis* (Schott) Merr.
planted in pit *Cyrtosperma merkusii* (Schott) Hassk. Schott
DHN 1000 (us) 6/1958

2 19 *Alocasia macrorhiza* (L.) Schott
invading pit, not planted
edge of coconut-breadfruit forest
just back of village

5 20 *Thunbergia involucrata* (Forst.) A. Nels.
dominant locally in
ground cover

2 21 *Musa sapientum* L.
planted in depressions
and taro pits, also rarely
on higher ground

5 " on rotting coconut log

leaves with blades
inclined, dull green,
glaucous beneath "bratah".
~~small~~ culms erect.
sterile
gray
closely adhering
to bark.

sterile, acauliscent.
leaves erect, 0-2 m. tall,
bright green, glossy,
blades erect, few prickles
on petioles. "iarig" or "iari"
sterile, leaves erect,
bright green, 0-2 m. tall.
"wot"

prostrate, ~~fruits~~ flowering
branches erect or ascending
deep green, healthy plants.
"banana"

white with dark
concentric rings, brown or
blackish "lajilingin lejili"

74 1952 Marshall Is.

3402:

5 on ~~the~~ path and rocks beside it

1 24 in rotten *Pisonia* sticks

6 25 *Adenostemma lavenia* (L.) Kze. common locally in ground cover

patch of *Barringtonia* forest on seaward boulder ridge and flat.

4 26 *Pisonia grandis* R. Br. scattered on inner edge of forest

8 27 *Peperomia* several small colonies on boulders in east end of forest

5 28 *Barringtonia asiatica* (L.) Kurz pure stand, spaced about 5 m. apart, bases covered by boulders. Some seedlings under trees.

29 Coconut-breadfruit forest

5 29 on ~~the~~ fallen sticks in dense part of forest

6 30 *Fleurya undulata* Gaud. in rather open place on broken coral, common locally

Lal Atoll

75

sparingly fertile.

stems ascending; ray flowers white. "bulibulgas"

"pang" tree 15 m. tall, light green, sterile.

stems fleshy, ascending; sub-fleshy; leaves "rabikiaga"

tree about 20 m. tall, 0.5 m. thick, others much larger, one hollow one seen 4 m. + through; flowers white, fragrant, stamens with purple tips, picked up under trees, fruits picked up under trees. "wuj" "wip" both names used plant used medicinally.

black coating on sticks.

erect, stems fleshy, red. "nen kutekut"

in edge of
in thick forest along passage
beach, mostly *Acacia*, *Guettarda*
and *Messerschmidia*.

34031 *Canavalia microcarpa* (D.C.)^v *Piper*
climbing in trees in
edges of forest at top of beach

5 32 *Pemphis acidula* Forst.
single tree at edge of forest
at top of beach.

5 33 *Suauana maritima* L.
single large shrub at edge
of forest at top of beach

1 34 *Caesalpinia*
single seedling just
inside forest

2 35 *Cordia subcordata* Lam.
single tree in edge of forest
at top of beach

5 36 *Vigna marina* (Burm.) Merr.
growing on top of beach
and climbing into trees

Jan 7. - islet south of Lao' islet
dense forest at outer end
of passage

5 37 *Terminalia samoensis* Rehd.
rare in edge of passage

5 38 *Ochnosia oppositifolia* (Lam.) K. Schum.
dominant, almost pure
stand on ~~broken~~ flat of
~~broken~~ broken coral.

vine; flowers magenta,
"maorlap"

bushy tree 3-4 m. tall;
leaves sub-fleshy,
astringent; petals white.
shrub 2.5 m. tall;
flowers yellow. "kalangi"

tree 8 m. tall, sterile.
"kano"

tangled vine; flowers
yellow. "marukunangjojo"

tree ~~15~~ ¹⁵ m. tall, 10 cm. thick,
others 2-3 m. tall and 30 cm.
thick, flowers white, fragrant.
fruits in grains, green
(yellow when ripe), stones
picked up on ground under
tree "kabuigiling"

Jan. 7 Las Islet

Taro pit near center
sample # 41 - ~~was~~ a brown
mush of a jelly-like
consistency from bottom
of pit. pH 8.6 (trueq).

Vial 69 - scorpion and
blood of young from
under bark of rotting
coconut log.

1.

Vial 70 - same as top layer
of vial 68 - earthworms
and mite from under ~~the~~
rotting coconut husks and
in much in taro pit.

Vial 71 - ants, larvae, pupae
etc. from large ant colony
in rotting coconut log,
cockroaches living with
ants, other animals under
bark of same log. but
not obviously commensal.

34039 Phoenes
on rotting log in taro pit

gills brown when old,
almost white when
young

Jan. 8 - Lotj Islet -
Calcareous sand and
gravel, varying to
boulders.

34040 *Pandanus tectorius* (L.) Lodd. ssp. *luteus* ^{Papu}
at top of lagoon beach

5 41 *Hernandia sonora* L.
several trees at w. end of island
in front beach.

2 42 *Hibiscus tiliaceus* L.
single tree in coconut -
breadfruit grove, shaded

2 43 *Bruguiera conjugata* (L.) Merr.
single tree in ~~old~~ old
tar pit

1 44 *Ipomoea pes-caprae* (L.) Roth
single seedling on gravel at
top of ^{lagoon} beach

5 45 *Bruguiera*
on fallen *Artocarpus* leaves

1 46 *Turbinaria ornata* J. Ag. (det. Taylor 1955)
dried specimens in drift on lagoon
beach

3 47 *Pipturus argenteus* (Forst.) Wodd.
in undergrowth and
thickets in coconut plantation
on seaward side of islet.

5 48 on coconut trunk in plantation

5 49 on rocks and coconut bushes in ^{coconut} plantation on boulder flat

tree 4 m. tall; fruit roughly
spherical, phalanges
orange at base, sweet

- but of rather poor flavor, "bop"
large tree, trunk
light colored, smooth;
flowers grayish - cream.

- wood brittle, white. "pingiping"
slender tree 6 m. tall,
chlorotic, sterile. "law"

Tree 8 m. tall, sterile.
"jony"

leaves somewhat fleshy

too small spreading
tree 5 m. tall "arne"

dry, peeling off

coconut plantation on boulder flat

38050 *Digitaria microbaudne* (Presl) Henr.
 5 common locally in plantation, especially on lagoonward side and near dwellings.

2 51 *Cinnam*
 near dwelling

2 52 *Ocimum sanctum*.
 near dwelling

5 53 *Sporomoea littoralis* Bl.
 abundant on lagoonward side of island in coconut and coconut-breadfruit forest.

1 54 *Vigna marina* (Burm.) Merr.
 colonist on new sand flat

1 55 *Rhizophorae*
 on roots of *Vigna marina* in new sand.

1 56 *Sporomoea tuba* (Schlecht.) Don
 colonist on new sand flat

1 57 *Polyporus cinnabarinus*
 on rotting pandanus log

2 58
 on weathered coconut shell
 in drift at top of lagoon beach.

plant 1.3 ~~m~~ tall, neck about 3 dm high, 1.5 dm. thick; peduncle somewhat compressed, when in fruit becoming twisted, somewhat shorter than leaves; flowers white, purplish outside; stamens + style maroon. "kief" very aromatic

vine covering ground climbing into bushes. Flower bright rose-purplish.

rooting at nodes; prostrate, inflorescence erect, flowers yellow. nodules spherical.

seedling.

vermillion

Jan. 3 - Lotj Islet

Vial 72 - bottom layer - 2 species of ants - *Isolenoopsis* from under rock in old taro pit, large black species from under coconut nearby. top layer - operculate snails from crevices in a large log on lagoon beach above high tide.

Vial 73 - mosquito larvae and minute crustaceans from well in middle of islet

Vial 74 - ants from galleries in dead stub well up on mangrove tree, depression in center of islet. Small ants from bark of same tree. Termites from large rotten log thrown up above high tide on lagoon beach.

Vial 75 - bottom layer - *Drosophila*, house fly, and long-legged flies around slightly rotting breadfruit on ground, beetles in cracks in same - Lotj Islet.

Top layer - grasshoppers around light, flies around food, Lae Islet

Entire island planted to coconuts except extreme ends and a broad depression near center, which latter is a solid forest of breadfruit with an under story of *Alocasia*. Ends have scrub, mostly seaweeds, which runs down seaward beach as a fringe, with occasional *Messerschmidia* and *guettarda*, fringe absent for a stretch near west end. Just inside east end is an open place, very dry, with *Lepturus*. Here the soil is unaltered sand. Elsewhere, though very rocky, where there is soil it has more or less organic matter. The broad depression has black soil (sample 42) between stones.

The outer half of the island is a broad boulder ridge or flat, pure large boulders in center, average size smaller westward, soil more abundant westward, becoming grassy. Boulders and coconut bushes very

mossy. In places no undergrowth at all, in other places thickets or abundant seedlings of Morinda, etc. small patch of *Pisonia* west of center, small patch of *Hernandia* and *Ochroma* near n. w. corner.

On this islet brush and coconut trash is thrown on the boulder flat and not burned.

Ground cover under coconuts and coconut breadfruit forest on laggonward half is in places a mat of *Vigna*, in places *Vigna* and *Ipomoea littoralis*, in places mats of *Wedelia*, *Polypodium* occasional.

Alocasia very common in central part, only one small colony of *Erythrosperma* left.

Chickens common.

2 Wandering Tattlers, 2 golden plovers, 2 turnstones, one white reef heron, several fairy terns, several noddies seen.

(One mottled reef heron - fail. - know.)

One white-crowned noddie seen on northeast side of lagoon.

Sample 43 - scoria cobble picked up just above top of beach on lagoon shore of Latj I.

for Lae Islet - in about dwellings and grassy places in village.

34059 *Carica papaya* L.

common

2 60 *Cleusine indica* (L.) Gaertn. along paths and in weedy spots

61 *Wedelia biflora* (L.) D.C. very common

5 62 *Fimbristylis cymosa* R.Br. very common

2 63 *Pseuderanthemum atropurpureum* (Burm.) Forb. ^{carinthia var.} _{Forb. Bailey} planted along paths

5 64 *Lepturus repens* (Forst.) R.Br. dominant in most grassy places

5 65 *Enagrostis amabilis* (L.) W.A. on paths and in bar spots

3 66 *Polyscias sentellaria* (Burm.) Forb. planted along paths

6 67 *Clerodendrum inerme* (L.) Gaertn. in waste spot, not very common in Lae.

3 68 *Asclepias curassavica* L. planted in yard

"papaya" slender tree 4 m. tall; or flowers cream color.

sprawling herb, up to several meters long, fls aromatic; flowers yellow. "marguerite"

caespitose, culms weakly ascending.

- shrub 1.5 m. tall, leaves deep bronze-purple, sterile, forming deep dense ~~so~~ turf. "rijg" (= grass)

spreading tufts

erect shrub 2 m. tall, branches erect, little branched; leaves very concave; sterile

shrub 2 m. tall, ~~much~~ branched, rounded;

flowers white with purple stamens, fragrant; "ulej"

caespitose herb 0.8 m. tall; corolla red, crown orange.

Jan. 9
Islet just north of Lee Islet
sand and gravel flat in
lagoon, just below low
tide level.

34009 "Myxophyceal" (det. Taylor 1955)
3 under side of stones
5 370 *Cladophora* sp. (det. Taylor 1955)
in a small depression
3 71 *Dichyosphaeria cavernosa* (Forsk.) Borg. juvenile (det. Taylor 1955)
under side of stones
1 72 *Valonia*? (inadequate) (det. Taylor 1955)
under side of stones

~~Jan. 9~~ Jan. 9 Luisap Islet

2 73 *Ximenia americana* L.
rare in coconut plantation

Jan. 9 Bigenay Islet

1 74 75 *Boerhavia*
common in more or less
open spots on broken rock
5 75 *Albuga platensis*
parasitic on *Boerhavia*
2 76 *Boerhavia*
on bare hot flat of broken
coral in opening in scrub
5 77 *Intsia bijuga* (Colbr.) Hig.
in opening in scrub at edge
of forest.

Jan. 9 Bui Islet

5 78 in mixed forest on old stump

black.
(possibly a sponge)
small nodules, pale
green.
pale green.
pale green.

shrub 1-2 m. tall (spiny
twigs from smaller bush);
foulous odor when crushed.
sterile. "Kailikelik"
prostrate leaves
white beneath; flowers
pink. "pennai" or "perian"
infected branches erect.

sterile. "Kohndi" or "Pepanay"

low widely spreading
scrubby tree; standards
white turning rose;
flower fragrant. "kubuk"

Jan. 9 Biigilapij Islet

14079 *Intzia bijuga* (Aubl.) Vell.
common in mixed forest.

Jan. 9 Lae Islet

coconut plantation along
north passage8 81 *Cassytha filiformis* L.
parasitic on *Septum reva*
on ground near passage

8 Jan. 9. Lusap Islet

2 91 in dead *Ochromia* trunkSample #44 + #45 two samples
of surface soils in *Ochromia*
forest on Lusap?44 nearer center of island,
blacker, crumbly.45 nearer outer beach,
sandier, gray-brown, granular.
both from top to under
coral pebbles on surface.Vial 76 - animals found under
rocks, dead leaves, etc. on the
floor of *Ochromia* forest with
some *Limnia* and *Macaranga*Vial 78 - earthworm from sand
to. as vial 76, under stoneslarge tree, trunk gnarled
and twisted, branched;
leaves dark green, sterile
"kubuk"tangled yellow-green
stringy; fruit whitish
when ripe, sweetish but
with bad flavor. "kaanin"Vial 77 - termites from
Messerschmidia wood
bottom layer from rotten
place in large tree, trunk 1.
top layer from rotten stub
on living tree on passage
beach of Enigaidorig Islet.Vial 79 - bottom layer -
snails & insects from leaves
of *Limnia* in coconut grove
Lusap Islet.top layer - snails etc.
from pile of rotting
coconut husks in dense
woods, islet n. of Lae Islet.

Jan. 10 - Lae Islet
Village

Hole dug about 20' in from
high tide mark on lagoon
beach between roots of
large breadfruit tree to
water at 5.5' depth, 4:45 p.m.
82° F. 2200 p.p.m. total salinity
(hydrometer) (Arrow Lae #12)

Profile #46 - 2 layers, th.
0-6'.

→ top layer gray, variable in
intensity & thickness (due
to fact that it is in village
and practically in a dooryard)
from 0.3' - 0.9' depth. Many roots.
a compact sandy layer.

changing gradually to
Layer 2 - light pinkish
coarse sand, more or less uniform
to at least 6' depth, well packed.

Sample
#6-2
Jan. 10 - Gibinii Islet
rather open coconut
of one on rocky sandy is.

34092 *Cordia subcordata* Lam.
now on a high limestone
between coconut grove and
scrub forest.

3 37 *Ipomoea turba* (Benth.) Don
tangled over bushes and
trees and on ground in open field.

Vial 30 - insects ^{adults} collected
generally, islet south of Lae Islet;
scale insects from coconut
petioles. *Enigmapolydora* det.
E. J. G.

Vial 31 - insects attracted
to lights - Lae Islet.

bottom layer -

Vial 32 - insects in
fallen pandanus roots
islet. ~~soil~~ ~~soil~~ ~~soil~~
~~which is not to light~~
~~soil~~ Top layer - termites in ^{decaying} coconut root
sample 17 - pupae from ^{Lae Islet}
sand flat near corner
Lauay Islet.

sample 48 - drift
seeds from Lae Beaches

brushy trees 4 m. tall,
mostly sterile. "kano"

"kano", flowers white.
"marbel"

Jan. 10 - in passage ^{east} south of Enimaneiso Islet

34094 *Rhipidiphyllum reticulatum* (Asken.) Heydr. (det. Taylor 1955) green felt
5 ff. on lower sheltered part of rocks ~~in~~ in channel between tide levels.

5 84 Halimeda

common locally in crevices between rocks in deepest part of channel just about at extreme lowtide mark

5 76 *Caulerpa terrulata* (Forssk.) J. Ag. (det. Taylor 1955) common on hard clean stone bottom of channel, below or at extreme lowtide mark, especially following cracks.

1 87 *Microdictyon okamurae* Setch. (det. Taylor 1955) green between rocks at about lowtide mark in channel

Jan. 10 - Enigandoya Islet
mixed forest near passage beach on east side.

1 88 Rhizobium
on roots of *Canavalia micropoda*, either rare or nodules detach easily.

green

rhizome clinging tightly to rocks, turning yellow distally.

green

in spherical nodules.

Jan. 12 - Rae Islet

34389 *Messerschmidia argentea* (A.) Bl.
Top of beach at lagoon end of
m. of passage

90 *Leucosia frutescens* (M. & B.) Krause
Top of passage beach
common

planted in village

91 *Artocarpus altilis* var.
common

92 *Phyllanthus niruri*
weed in gardens with
nothing of other plant

93 *Hymenocallis littoralis* (L.) Bl.
Sparingly planted

94 *Plumeria rubra* L.
common

95 *Croton sp.* (L.) Bl.
occasional along lagoon beach

96 *Lida fallax* Walp.
Planted in doorway
(not seen wild on this atoll)

97 *Acalypha wilkesiana* Muell.-Arg.
Sparingly planted about houses

98 *Pseuderanthemum caruthersii* (Seem.) Guill. var. *caruthersii*
Sparingly planted along
walks

tree 5 m. tall, leaves silvery
green fleshy; flowers
white, fragrant. "hirin"
shrub 3 m. tall, flowers
white. "manat"

large tree, 15 m. tall,
fruit said to be ready "batakatah"

Village

small umbellifer shaped
tree, 1 m. in d. almost
bare of leaves; flowers
yellow white with
yellow center, fragrant

large spreading tree
about 15 m. tall, crown dense
sterile. "luej"

bush 0.8 m. tall, flowers
orange "hio"

shrub 2.4 m. tall, leaves
var. colored, rather chlorotic

shrub, leaves green,
sterile

Jan. 10 left 3 of 2000
Partially wooded, forested
floristic diversity
7459 sp. 1. *Acacia sijoga* (Colbr.) Kze. ✓
common in mixed forest
and ghat in lowland but
4100 *Acacia cornuta* L. ✓
common locally in
Dehong and mixed forest
"pili"
on rotting coconut log in dry
forest.
or *Impelia charmaini*, Boiss.
on small colony near
mouth passage beach
edge of country road
in ~~path~~ in village
Jan. 10 *Psidium*
most
or ghat in village
3 03 on open coral sand in coconut grove
3 04 on open coral sand in coconut grove
3 05 on open coral sand in coconut grove
3 06 *Guettarda speciosa* L.
common along ~~the~~ passage beach
"pili"
7 07 *Triumfetta procumbens* ^{Forst.}
common in open coconut
grove

medium

small tree 4 m. tall;
fruit green. Seedlings
common locally ~~near~~ ^{under} ~~forest~~ in
bamboo

stems spreading,
grey milky; flowers
white beneath. Brown
ground. "pili"

black ~~tuft~~ hummocky crust

small thickly branched
tree, 5 m. tall; flowers
white, fragrant,
corolla practically
all fallen by mid-morning.
Prostrate, flowers
yellow, closed at
mid morning, "atat"

Jan. 6-10 - Lae Atoll birds

Fairy terns seen, not in great numbers, not more than half dozen at a time, on or over practically all islets visited.

Common noddies seen over practically all islets and all parts of lagoon visited, in numbers up to a dozen. On Enijaridogn islet they were seen nesting in numbers high in *Calroseia* trees, also, Jan. 8, on ^{Bigilapij} ~~Bigilapij~~ flock of 30-40 seen sitting on sand bar.

White crowned noddies - very rare, only one bird seen that was probably a white-crowned noddie. This not certain.

Crested terns - three or four to be seen at almost any time circling over lagoon beach, diving and fishing, usually near Lae Islet.

Golden Plovers - seen in small numbers (up to 4 at one time) generally, especially on beaches and reefs at low tide, in openings in woods, and in open coconut groves. nat. name "lelej"

Wandering tattler - a few seen, no more than two on an islet, usually on outer beach or reef flat.

call when flushed a rather rapid "dee dee dee dee" - quite high pitched.

Turnstones, 2 seen on outer beach of Lotj, one on Bigilapij

Whimbrel - one curlew seen by Arnos, one by me, which seemed a bit different from the bistle-thighed curlew seen on Ailuk, no rufous cast perceptible, but not seen from close enough to be certain. Bill seems more curved than in bistle-thighed curlew.

Reef heron -

white	mottled	Dark
Lae	#6	Bui
Lotj		Luisap
Bigenaj		Enijandorpu

Rarime 2

One dark blue one on Lae seen in the coconut grove. All others over or on beaches or in passes. In addition one individual of a solid gray color, lighter than the dark blue phase, seen over lagoon at Lae Islet in company with a blue one and a mottled one. This may have been an immature.

These birds seem to keep fairly well scattered over atoll, possibly having their own territories. Not more than three seen together.

White splash of noddly (?) excrement on dead leaves gave pH 4-4.5 with 7 msoq test.

Cats, dogs, pigs, people seen, many evidences of rats in form of coconuts with holes chewed in them. Chickens and ducks common. Pigs confined. ordinary white + mandarin thinks very common. Geckos occasional (small). Black lizard rare. Green swift rare or absent - not seen by me but reported by one of Q's. Not brought in by native boy, though reward offered.

Mosquitoes larvae seen in ~~the~~ rain barrel on Lae and in well on Lotj (vial 73). adult day-flying mosquitoes on Lae, islet north of it, Bigilapij, Enimanetou. all looked like Aedes & paper and in vials - one individual came to light.).

Lae atoll - Horticultural notes.

Pandanus planted by cuttings - not good from seed.

Breadfruit planted by root sprouts.

Old taro pits frequent on Lae Islet and one on Lotj - some are in use now but in a very limited way mostly invaded by Alocasia which is not eaten.

Said to have formerly been much more Cyrtosperma and Colocasia but ~~mostly~~ ~~that~~ pigs were formerly numerous and permitted to run loose and destroyed almost all the taro.

Coconuts "ni" planted everywhere, acc. one informant, but in some places don't do well. Actually, the rockiness of the soil seems to make no difference at all as long as there is a little moisture, as on Lotj they were doing well on a great layer of boulders and soil.

Brief descriptions of vegetation of islets, in order from northernmost clockwise (to correlate with aerial photos, sorties ~~108~~ VD-3 VD-3 P-37A, VD-3 P-37A, VD-3 AP43A, and VD-3 AP43B, filed in Navy film library, Pentagon Bldg., and with overlays made from these photos. Photos taken in December 1943 and March 1944.) Observations made Jan. 6-11, 1952.

1 Ribong Islet - not visited, seen only from a distance. Inner portion, roughly semi-circular, planted to coconuts. This is surrounded by a crescent of very uneven mixed forest - probably consisting of *Pisonia* (light in photos), *Pntsia*, *Ochrosia*, *Messerschmidia*, *Guettarda*, *Pandanus*, and *Scaevola*. The *Ochrosia* does not form large pure stands as on some other islets. The outer and passage beaches are lined with *Scaevola* scrub, probably mixed with other shrubs.

The two inner corners of the island are recently colonized sand flats, where the shrubs have not yet had time to form a closed scrub. (ss) VD-3 P-37A prints 3-4; Fae overlay A. VD-3 AP43A prints 3-5. VD-3 AP43B prints 11-12.

2 ~~Islet~~ tiny sand islet $\frac{2}{3}$ way from Ribong to Bigilapij - not visited, seen from distance. One coconut tree rather small. Apparently no other vegetation, unless it be grass.

VD-3 P-37A prints 5-6. VD-3 AP43A prints 6-7 ~~prints 8-9~~

3 Bigilapij Islet - On inner beach is a broken line of big *Messerschmidia*, *Guettarda* and *Scaevola* trees. Extending in from this is a coconut grove. This has little ground cover, a scattered second story of *Morinda*, *Guettarda*, *Alophylus* and *Pisonia*, ~~and~~ scattered larger *Pisonia* trees. The outer edge of the grove borders a *Pisonia* forest which

changes to *Pisonia* with some big *Intsia bijuga* trees. Within this is a patch of dense *Ochromis* forest. This forested area is wider than the coconut grove. The west passage beach is sand that at the time of the photos was not thoroughly covered yet by vegetation. It was not visited. The outer side and east passage beaches are boulders and lined with *Sciaevola* scrub, gradually merging into the forest. Large sand-bar on s.e. corner is still bare, as in photo. VD-3 P-37A prints 6, 8.

Lae Overlay B. VD3-AP43A prints 7-10

4 Bui Islet -

Coconut grove on inner third, but outer part of this coconuts are incidental to mixed forest on west corner absent. The remainder of the islet is covered by a rather uniform mixed forest of *Pisonia* and *Intsia*, with a small

patch of *Ochromis* (not identifiable on photos), and surrounded by *Sciaevola* scrub on three sides, rather narrow belt.

VD-3 P-37A prints 8-9,
Lae Overlay C. VD3-AP43A prints 10-12

5 Reipu Islet -
Coconut grove rather small, on inner third of islet. Most of remainder of island a mixed forest of *Pisonia* and *Intsia*, with a very small patch of *Ochromis* (0). The whole surrounded by *Sciaevola* scrub⁽⁵⁾ except a bit on the south side where the coconuts come down to the beach and an area on the west passage where there is a boulder flat with sparse scrub of *Intsia* or *Sciaevola*, etc. (ss). The mixed forest is quite uniform. On the photos the *Intsia* is darker than the *Pisonia*.

VD-3 P-37A prints 9-10, 22-23
Lae Overlay C. VD3-AP43A prints, 10-13.

6 Bigenaj Islet -

Coconut grove on southern part of island, open along lagoon beach, extending seaward along east side but sparser and mixed with forest.

Northwest and northeast parts mixed forest of *Pisonia* and *Intsia*, with a long patch of *Ochrosia* in center extending almost to seaward beach.

Southwest beach has an open ~~open~~ boulder flat with scattered *Leucaena* and low *Intsia*, rocks completely bare except for scattered *Boerhaavia*, this becoming more abundant inland in slightly open places on broken rocks.

The whole surrounded, except on lagoon and southwest sides by a belt of *Leucaena* and *Guettarda* scrub.

VD-3 P-37A prints 10-11, ~~23-24~~

Lae Overlay D. VD3-AP43A prints 12-14.

7 Luisap Islet

The ~~south~~ ^{third or} lagoonward, half of the islet is largely in coconuts, scattered brush beneath, but largely clear. The s.w. corner partly bare sand, more grown ~~over~~ now than when photo was taken, but still a bare channel between *Leucaena* bushes.

The ^{part} seaward of the coconut plantation is mixed forest with of *Pisonia* and *Intsia*, with scattered large *Messerschmidia* trees and small patches of *Ochrosia*, but with one large area of pure stand of *Ochrosia* with nothing beneath but a dense stand of *Ochrosia* seedlings, these varying in size from place to place.

In the mixed forest the *Messerschmidia* trees are all large and probably relicts. No seedling or small trees of this sp. except near outer edges in scrub or beaches.

The seaward and passage
beaches are lined by a
belt of *Caesalpina* scrub,
with some *guettarda* & *bambusa*,
narrow on passage,
wider on seaward beaches.

In the coconut grove near the house the undergrowth has been very drastically cleared out, elsewhere fairly luxuriant but not so as to impede walking.

The *Ochromis* forest is a pure stand of trees of relatively even height, but increasing from about 50-55' on the outer edge to perhaps 75' on the side nearest the coconut grove, spaced 3-8 m. apart.

The ground is covered with fruits and leaves and a single scattered layer of gray coral pebbles. Soil is black, crumbly, mixed with some rubble, this becoming excessive at 6-8" depth.

Occasional lianas of *Ipomoea tuba* running up into canopy, these as much as 3-4 cm. thick, always twisting right to left. If drinkable water, though with an admixture of latex, flows from cut sections of these.

The ground in the Ochroma forest is densely covered by seedlings of Ochroma that ~~now~~ are, in any given spot, rather even in size. from 2-4 dm. tall in some places to perhaps 1 m. tall in others - seeming by some correlation with amount of light. These must die at this height as there are very few if any saplings. No great number of dead or dying seedlings evident, either. ^{a few very young} young Sanders. The forest extends

This forest extends,
in one place on the n.e.
corner, ~~at~~ to the inside
of the boulder ridge.

VD-3 P-37A prints 11-12, ~~23-25~~
VD-3-AP43A prints 12-14.
See Overlay D.

8 Enijaridoyu Islet -
Coconut grove on lagoonward
third of islet. Two patches
in outer third, one small
in n.e. part, one large in
n. and n.w. part, this very
near outer beach. (~~not~~ This
patch not field checked).

Mixed forest on ~~passage~~ east passage beach and inland about half-way, back of coconut grove.

Outer beach lined with a belt of scrub which extends down along the west passage beach as a narrow fringe of sea-ovala.

The main part of the interior is occupied by a pure *Ochromia* forest very similar to that on Fuaap. This extends to the passage beach with no transitional stage to the sea-ovala fringe.

The light colored areas in this forest on the photos are still evident in the same positions and are of trees that are ~~dead~~ very chlorotic. There are some openings, mostly with no special vegetation in them except large seedlings or small saplings of *Ochromia*.

In this forest the size of the ground cover of seedlings is not precisely according to the openness of the canopy above, though there is some relationship. The soil in this forest is black, crumbly, up to 10" deep below it gets too

rubby to dig with machete, though the depth and surface rockiness varies considerably.

Composition of mixed forest along east passage is: *Brachylaena*
Messerschmidia
Guettarda
Terminalia
Cordia
Pandanus
Cocos
Ipomoea tuba tangling the whole.
Pemphis on inner corner.

VD-3 P37A prints 11-13, 24-25

VD3-AP43A prints 14-16

Lae overlay E

9. Ennemunit Islet

mostly in coconuts.

Relatively narrow belt of mixed forest, with scrub fringe around outer half. Large sand bar on n.w. corner. Mixed forest extends to lagoon on south east passage and is fairly wide.

VD-3 P37A prints 12-13, 24-25

VD3-AP43A prints

Lae overlay E

10 Yonbiji Islet -
covered with scrub, mostly
seaavola, with a few
stunted coconut trees.

VD-3 P-37A prints 13-14, 24-25

VD3-AP43A prints 16-18

Lae Overlay F

11 small gravel islet between
Yonbiji and Gibinni islets -
no vegetation, pebbles
are discolored, dark gray,
as though they had been
exposed for a long time.
Top is a shallow depression.
One drift coconut sprouted
but lying on its side
and not rooted.

VD-3 P-37A prints 13-14, 25

VD3-AP43A prints 16-18

Lae Overlay F

12 Gibinni Islet -
Inner two thirds occupied by
an open coconut grove
with openings on west side.
Ground cover mainly *Ipomoea*
but sparse. In openings
mainly *Ipomoea tuba* on
ground and on bushes.
Outer part mixed scrub.
Border between coconut
grove and scrub is a row
of *Cordia subcordata* - large
shrubs, mostly sterile and

with unusually small
leaves (34082). Both passage
beaches and outer beach
lined by seaavola scrub.

Arrows well "Lae" 11
dug here 5' deep, hit rock
at 3.5', no water.

VD-3 P37A prints 13-14, 25

VD3-AP43A prints 16-18

Lae Overlay F

13 Islet just north of Lae Islet -
Inner half of islet
mostly coconut plantation,
its outer border quite
uneven, fingering into
the forest. Undergrowth
of *Wedelia*, *Morinda*
and various young
trees, this where not
cleared out becomes
dense and tangled
with *Ipomoea* and
Canavalia vines.
Scattered Pandanus
found here.

Lagoon beach partly
lined with seaavola,
mostly open. North
passage beach lined
with seaavola scrub
with various other small
trees & shrubs.

south passage beach open along inner part, mixed scrub along outer part. On the beach with *Acacia* scrub belt.

Forest mainly a pure stand of *Ochromis* up to 75' tall, with little but *Ochromis* seedlings beneath. on black crumbly soil, layer of fruits and leaves on surface. Here and there, as near passage beach and near contacts with coconut grove a few *Lisonia*, *Pitcairnia*, *Guettarda*, etc. along contact with coconut grove as small thickets of *Southernia*, forming small trees 2-5 m. tall, some of them with carpets of seedlings beneath them (34100). In open coconut grove by south passage beach is a sparse colony of *Euphorbia chamaissoides*, the only stand of it seen on Lae Atoll.

Running ~~diagonally~~
slightly diagonally

across the interior of the island, about east and west, is a slight elongate depression, not quite deep enough to have mud in the bottom. No difference in vegetation except that there seems to be no ground cover in these, and they are left in *Ochromis* forest, rather than planted to coconuts. Some of the relatively open places in the *Ochromis* forest roughly correspond with this depression.

In this *Ochromis* forest are also yellow spots, some of which were there when the photos were made. However, there seem to be more now, for example near the passage beach.

On the s. w. corner is a small patch of mixed forest and scrub. This, however, was almost completely cleared and destroyed by fire while we were there.

VD-3 P-37A prints 14-16

VD3-A P47A prints 17-20, 22-24

Lae Overlay * G

14 Lae Islet - almost entirely planted to coconuts except an area on the east point and one on the west point.

Extreme western part of coconut plantation and a strip on the north side, especially the northwest point, are in coconuts alone, the remainder mixed with breadfruit, except also a strip along the seaward side of the western peninsula.

In the coconut (alone) area the ground cover is fairly luxuriant, of *Lepturus*, *Fimbristylis*, *Polypropodium*, *Trumfetta*, *Vigna*, etc. Moss on ground between grass tufts. *Morinda* seedlings common, no adult trees.

Pandanus is common, a few small *Calophyllum* trees. Almost every tree has mosses and hepaticas as well as several species of lichens on the trunks.

The coconut breadfruit forest back of the village ~~is~~ is fairly dense, giving a very considerable proportion of

shade. A scattered second story contains many *Pandanus*, many *papayas*, a few *Guettarda* as well as young breadfruits and coconuts. In places there is an undergrowth of *Wedelia*, *Morinda* seedlings, young *Pandanus*, etc. Few mature *Morinda* west of center of island, but east of this they, as well as *Calophyllum*, are common. Locally there are clumps of healthy looking banana plants, especially in taro pits. *Vigna* and *Canavalia* climb over the shrubs and even the trees.

The ground cover varies much from place to place but generally contains *Lepturus*, *Vigna marina*, *Tacca*, *Thunarea*, locally *Polypropodium*, *Adenostemma*, and *Fimbristylis*.

Where the tree stand is almost pure breadfruit and very dense, ground cover is almost absent - only a scattered *Tacca* and

Adenostemma, with a
many Morinda seedlings.

It ~~is~~ ^{would be} rather interesting
to know how the morinda
seeds are so generally
scattered in areas where
there are no trees to produce
seeds.

On the lagoon side
breadfruit trees come to
within a very short
distance of the salt water.
One was 16 paces from
high tide mark, another
7 paces. A hole was dug
near the base of the
latter and a water sample
was taken, which contained
2200 ppm. total salinity (see
p. 94). A few breadfruit trees
seem to be quite close to
the outer beach also.

~~From~~ the outer end of the north
passage beach, extending
eastward for a short
distance, and at intervals
thereafter, is a strip of
Ochrosia forest on the boulder
ridge, of variable width,
but up to perhaps 100^m wide.
This is usually almost a
pure stand, with a ground
cover of Ochrosia seedlings and
Ipomoea tuba. In places

Pandanus and Guettarda
are mixed with the Ochrosia.
The outer edge of this,
extending along the
passage beach and the
outer beach, is a dense
scrub of Sideroxylon,
Guettarda suriana,
with some Pemphis and
Cordia, tangled with
Ipomoea, Vigna, Canavalia,
especially along outer
part of passage.

Ipomoea and Canavalia
climbing in forest and
forming part of canopy.

In the center of the islet
is an area of old taro pits,
some of them in use at the
moment. They are of irregular
size and shape, rather
elongate and winding,
with coconut and breadfruit
trees growing in them.

Here the vegetation is a
luxuriant mixture of breadfruit,
coconut, Guettarda, Allophylus,
Premna, and Morinda, tangled
with Canavalia, Ipomoea
and Wedelia.

The bottom of the taro pits
has a layer, rather shallow,
of a jelly-like mud (sample
#41, ~~see~~ p. 78, also in wells #7, #8 - t.

soil samples corresponding), pH 8, overlaying sandy material, water table very close to surface. Some *Colocasia* and *Cryptosperma* raised in there, but badly invaded by *Alocasia* which is considered inedible. Some open areas with *Cyperus odoratus* ground cover.

The whole aspect of the vegetation in the coconut - breadfruit area, and even in the coconut areas, is more luxuriant. The ground cover is generally more dense and deeper and the undergrowth more luxuriant than in islands previously visited on this trip. Epiphytes are more abundant. The canopy is more closed.

The eastern ~~point~~ ^{peninsula}, for about one third the distance from the point to the nearest lagoon shore, is not in coconuts. It is partly densely forested, partly open. The open areas are of ^{not} ~~small~~ ^{large} ~~holes~~ ^{holes} with a little soil well down between, and are blanketed with *Wedelia* to a depth of 1 m. or more. This is very outstanding on the aerial

photos like a meadow. (w)
A few *Pandanus* trees scattered in it.

Surrounding this area is a mixed forest on larger sized broken rock, this rock appearing to be a series of boulder ridges, one large one around the point, lesser ones across inside this. In this forest *Guettarda* is most important.

Pandanus and *Allophylus* are common, in places abundant, and *Pisonia* forms pure colonies locally, common elsewhere. The canopy is generally complete, tangled with *Ipomoea* - *tuba*. Around edges and in openings *Ipomoea* and *Wedelia* form a tangled mass. It is open beneath except for trunk and bare lower parts of vines. Many *Allophylus* and *Guettarda* seedlings.

The whole is surrounded by a narrow fringe of *Scaevola* scrub on the outer boulder rim.

On the south side is a patch of dense forest of *Barringtonia asiatica*, nothing else. This resembles, on the aerial photos, the *Ochroma* forest, except that

The ~~textured~~ tessellations are a bit finer and more uneven.

This forest is perhaps 60' tall, with ~~almost~~ almost complete canopy, no undergrowth whatever. Gray trunks quite large, largest seen almost 4 m. diam. but hollow and rotten. ~~top~~ Average trunks 1-3' diam. Appears that 1-2' of boulders have been deposited around the bases of these trees subsequent to the forest reaching more or less its present development.

Ground is now an uneven flat of of boulders up to large size. Siana stems of *Ipomoea tuba* are abundant growing up into canopy, sometimes several or many twisted into great ropes, single stems to 4 cm. diam. On the rocks in one end of the forest is a colony of *Peperomia*.

Along the seaward side the boulders form a ridge 16-17' high (acc. surveys) on outside slope of this is a belt of mixed forest of

guettarda, *Messerschmidia* and *Scavoala*. Around the inner edge of the forest *Pisonia* is common. Just inside of forest are small openings, the substratum of small broken coral. Here is much *Fleurya*. Locally *Thunia* ~~is~~ makes up ground cover in fine stand; elsewhere *Wedelia* is dominant.

The ~~so~~ end of the west peninsula is of sand, apparently very dry. The vegetation is scattered *Messerschmidia*, some *Scavoala*, ^{some of it close} ~~much~~ ^{scrub} ~~loose~~ sand with blue-green algal crust very well developed (74007) rolled and wrinkled on drying.

In the coconut grove near this end is some *Clerodendrum* undergrowth.

round worn
out along
inner ridge
of sand
on end of
on beach
just
with
many
pink
seedlings

VD3 P37A prints 15-18

VD3-AP43A prints 18-27

VD-3-AP-43 B prints 14-15, 4w, 5w

Lae Overlays H, I

15 gravel bar west of Rae Islet -

No mature plants, but many seedlings growing on flat tops. There are principally Scaevola, but a few Mresserschmidia, one Pandanus, one Vigna.

VD3-AP43A print 27

16 Rarime Islet -

appears as 2 islets on chart and on aerial photo, but gravel bar connecting two is high enough to be above high tide and almost all vegetated over.

East part is covered by mixed scrub, principally Scaevola.

West part is open coconut grove surrounded by Scaevola scrub, very rocky, with a thin ground cover of Lepturus, Polypodium, Triumfetta and Cassytha, some ^{scattered} ~~few~~ large shrubs of Pemphis and Scaevola. in interior, Morinda seedling.

VD3-AP43A print 27.

17 ~~old~~ sand islet west of $\#^{16}$ -

In aerial photo only with small patches of vegetation, now much better covered by scrub - not visited, examined only from a distance.

VD3-AP43A prints 30-31.

18 small sand islet west of $\#^{17}$.

Densely covered by scrub, apparently still maintaining its crescent shape, convex toward lagoon and windward.

~~VD3-AP43A~~

VD3-P-26A print, 8-9

VD3-P43A print 31

19 sand bar west of $\#^{18}$ -

bare, crescent-shaped with convex side to lagoon and windward.

VD3-P26A print 9

VD3-AP43A prints 31-33

~~VD3-P26A print 9~~

20 sand bar just east of Lotj Islet - same as $\#^{19}$, crescent more convex

VD3-P26A print 9

VD3-AP43A prints 32-33, 35

21. Loty Islet - see Np. 85-86.
 1/2 west breadfruit more
 scattered among coconut trees.
Pisonia clump about 3/4
 way to west end.
 Outer belt of scrub more
 less in coconuts - quite
 tall *Acacia* and *Pipturus*,
 not continuous.

VD-3 P 24 print 8-10
 VD-3-AP 43 A prints 32-33, 35-38
 Lae Overlay 2

General pattern for
 windward islets -
 coconut groves are small
 in relation to sizes of islets,
 on or near inner side of
 islet, semi-circular
 with the straight sides
 toward lagoon, convex sides
 reaching to middle or
 less. Outside this is a
 crescent-shaped area
 of natural vegetation
 conforming to outline
 of island and that of
 convex side of coconut grove.

Undergrowth in coconut
 groves of *Wedelia*, *Pomoea*,
Gacca, etc., ground cover
 of *Pipturus*, *Fimbristylis*, etc.
 State of undergrowth is

dependent on how recently
 it has been cleared out.
 Burning of trash is
 commonly practised.

The mixed forest which
 commonly is just outside
 the coconut grove is largely
 of *Pisonia* and *Intria*,
 with isolated ~~*Psychotria*~~
 trees or small groups,
 occasional *Guettarda*^{Pandanus}, and
 isolated large old
~~*Cannefortia*~~ ~~*Cannefortia*~~ ~~*Cannefortia*~~ trees,
 no young ones. This forest
 has sparse undergrowth,
 mainly of young trees of
 the same species, with *Pomoea*
 and *Canavalia* vines, etc.

On most of these islets are
 patches, large or small,
 of pure stands of
~~*Psychotria*~~ ~~*Psychotria*~~ ~~*Psychotria*~~, more or less
 even in age with
 pure ~~*Psychotria*~~ ~~*Psychotria*~~ seedling
 stands beneath. Sometime
 these ~~forest~~ ~~forest~~ ~~forest~~ ~~forest~~ ~~forest~~ practically
 to the beach.

Seaward and seawards
 the mixed forest changes
 to a belt of scrub, widest
 toward the sea, there usually
 almost pure *Acacia*, more
 mixed and more luxuriant along
 passage beaches.

134

1952 Marshall Is.

Jan. 13 -
around Administration Area.
34108 *Nostoc*
very abundant on ~~so~~ compact
coral rubble surface.

Majuro atoll

135

dark green, ~~ff~~ gelatinous,
up to ~~see~~ 2-3 cm. thick.

Jan. 15 - Loi and South Loi islets.
 Vegetation here is basically
 Scaevola scrub with,
 on wider places, Messerschmidia trees, some
 guettarda - ~~P~~ Lepturus
 and Fimbristylis in opening.
 A few coconut trees left,
 mostly on South Loi,
 but most were apparently
 destroyed during the
 war. Ipomoea tuba
 tangled over everything.
 Northward Loi Islet
 trails out into a sand
 spit, which has only
 a narrow strip of
 Scaevola scrub on it.
 On the seaward side there
 are occasional mats
 of Ipomoea pes-caprae and
 Trumfetta procumbens
 in open spots.

On the lagoon side, is
 a low cliff, about 3-4 dm.
 high, cut in a layer of
 pebbles by small waves
 at highest tides. The bay
 of this is about at h.t. level.
 There is no fine material
 between the nut-size pebbles.
 Small crabs make these
 interstices their home (Vial 83).
 One or two pieces of punice

found on a similar
 low cliff but of sand
 on seaward side of north
 end of South Loi. (Given
 to Mac Neill)

Birds seen:

Common noddies were
 quite abundant generally.
 One or two were obviously
 gathering nesting
 material.

4 White-crowned noddies
 were seen flying over
 the lagoon just off Loi Islet.

A number of fairy terns
 flying over islet.

A flock of a dozen
 turnstones seen on outer
 reef flat. Considerable
 variation in color of
 upper parts from the normal
 dark mixture to light
 gray.

A flock of 12 golden plovers
 seen on ~~the~~ lagoon debris flat,
 a number on outer reef flat.

Several ~~turnstones~~
 wandering tattlers on
 outer reef flat

One curlew, probably a
 whimbrel, also on outer reef flat.

Reef herons, 2 white
 & mottled, in dark, flying
 over ~~sooty~~ & passage beaches.

Jan. 19 - Enubaj Islet

This islet was very much covered by military installations until abandoned in 1943.

Of the possibly pre-war vegetation a few scattered trees remain, mostly *Guettarda*, *Messerschmidia*, ^{Queenslandia} *Coconut*, *Pandanus*(?) - a thicket near the north end of *Scorodola*, *Messerschmidia*, *Guettarda*, and several *Ochromis* and one *Calophyllum*.

Along the outer beach the northern half or more is lined with a belt 30 m. or more wide of dense *Scorodola* forest about 4-5 m. tall, too thick to walk thru, with scattered admixture of *Guettarda*, *Messerschmidia* and *Lisonia*, abruptly ending at the top of the beach.

The whole south end and the whole interior of the island is covered by one vast and continuous mat of *Wedelia biflora* and *Pomoea per-caprae*, with occasional admixture on the seaward side of *Pomoea tuba*.

Birds:

Wandering Tattlers numerous - eight seen at one and others were present, all on the outer reef flat at low tide.

A number of golden plovers on both outer reef flat and inner beach.

Three whimbrels (?) on outer reef flat, but flew away before a very close examination could be made.

Two reef herons, a white and a mottled one, seen.

One frigate bird (F. minor) soaring overhead.

Many common noddies, especially over and on ~~the~~ outer reef flat.

Several fairy terns seen flying.

Vegetation mat too thick to get much idea of soil, but mostly seemed to be sand with much rubble. Inner beach scarp cut into sand.

Jan. 15 - South Lōi Islet
seaward reef flat

34109

5 thin film on rocks between tides
3 10 ~~Rhipidia~~ *Rhipidia orientalis* A. and E.S. Gepp (det. Taylor 1955)
on upper parts of large boulder, just below high tide level
1 11 ~~AA~~ *Dictyosphaeria*? *intermedia* Weber-van Bosse (det. Taylor 1955)
near outer edge, just below low tide level
iridescent bluish green.
3 12 *Dictyosphaeria intermedia* Weber-van Bosse (det. Taylor 1955)
common near outer edge, just below low tide level
cells variable in size, green.
3 13 *Halimeda*
occasional near outer edge, just below low tide level
greenish - white.
1 14 *Valonia* (fragments) (det. Taylor 1955)
rare, just below low tide level
green
1 15 rare, just below low tide level
red
5 16 *Codium* sp. (det. Taylor 1955)
abundant, just below low tide level near outer edge
dark green, tough.
3 17 *Lithothamnion*
shoreward part of reef, above low tide level
forming a lumpy crust which, when well developed becomes
less firmly attached.
5 18 *Jania*
very abundant on seaward half of flat, forming an almost complete cover in places.
pinkish gray.
Jan. 15 Lōi Islet
3 19 *Ipomoea tuba* Schlecht. 1² Don
abundant, tangled in bushes and trees.
extensive vines.

Jan. 18 - Kwajalein Islet.

weedy roadsides, edges
of airfield, waste places
around installations.

34120 *Lynedochia nodiflora* (L.) Gaertn. v.

occasional in more
sheltered spots

5 21 *Stachytapheta jamaicensis* (L.) Vahl

local

2 22 *Euphorbia prostrata* Ait.

common in open spots on
bare ground.

3 23 *Paspalum vaginatum* Sw.

locally abundant

5 24 *Heliotropium procumbens* var. *depressum*

occasional along air strip

5 25 *Desmodium canum*

one colony seen along air strip

Since 1950 a few changes
are evident. *Emilia javanica*
is much more generally
common. ~~a few plants~~
Paspalum vaginatum
also has become ^{much} more
general. ~~locally~~ ^{locally} abundant.
A few species
have been introduced.

The air field has been
enlarged and much
vegetation removed.
The old nursery has
been cleaned up and
is much more active.

erect herb, 0.7 m. tall

spreading, branched
herb; flowers violet.

~~very~~ very prostrate, purplish.

only seen fruiting in one spot

stems ascending to end,
flowers with reddish
calyx, indigo standard.

Pluchea odorata is common
enough but nowhere
abundant, few or no large plants.
Pluchea indica has become
very common, abundant
around airstrip, especially
on seaward side.

Cynodon dactylon
common but only very
locally abundant.

Cenchrus echinata
generally abundant.

Chloris iniplata locally
common.

Jan. 19 - Enubij Islet
in secondary vegetation,
around ~~abandoned~~ military
installations.

34126 *Calophyllum inophyllum* L.
one plant seen

5 27 *Pemphis acidula* Forst.
a few large plants
in front lagoon beach

4 28 *Carica papaya* L.
one plant, almost
~~entirely~~ choked by vines.

6 29 *Pipturus argenteus* (Forst.) Willd.
common locally
in interior of islet

2 30
floating scum in old cistern

~~Open~~ Jar #7 - in top of this jar
are several hermit crabs
tied in a cheese-cloth, tied
in several folds of cloth -
at least three species - all
found around ~~near~~ a sack
of rotting copra thrown
up on beach.

small tree 5 m. tall,
sterile.

very bushy small
tree 4 ~~or~~ m. tall; leaves fleshy;
flowers white.

twisted, much branched,
2 m. tall; pistillate plant
only, no staminate near;
flowers cream white;
fruits only reaching
about hen's egg size or a
little larger, sterile.

shrub 3 m. tall;
fruiting receptacles
white when ripe.
dark green.

Vial 84 - Bottom layer - flies attracted to food, spider and crab from decayed spot in trunk of *Messerschmidia argentea* tree about 2 m. from ground - ~~Ebeye~~ Islet.

Second layer - ants, centipedes, cricket, etc. from axils of coconut leaves on low coconut tree - South Lai Islet.

Third layer - snails from a ~~box~~ wooden box standing in an abandoned quonset hut.

Hemiptera from *Vigna marina*, numerous. Spiders from abandoned quonset hut, Enubij I.

Fourth layer - snails and insects from axils of *Pandanus* leaves. Two medium species of ants had colonies in leaf axils. Large yellow one a single foraging individual, tiny ones crawling on trunk of tree. Snails all seem dead, but extraordinarily numerous in these axils. Enubij Islet.

Vial 85 - Bottom layer fleas from cat on Ebeye Islet. Jan. 24.

Second layer - larvae from bark of *Pisonia* trees, Enubetak Islet. Jan. 27.

Top layer - Wasp from building, Kwajalein Islet.

Ants and cockroaches from house on Ebeye Islet, Jan. 26.

Jan. 27 - Unioetah Islet*
Pisonia forest edged
 with other trees and
 with mixed forest on
 dune slopes on east side.

34131 31 *Pandanus tectorius* Park. ✓
 very common and making
 an important component
 of the vegetation on n.e. end.

32 *Coldia subcordata* Lam. ✓
 rare, just above top
 of beach, edge of *Pisonia* forest

33 *Ochromis oppositifolia* (Lam.) K. Schum. ✓
 a few trees on north east end
 in mixed forest

34 *Allophylus timorensis* (D.C.) ✓
 a few trees in mixed forest

35 *Polypodium scolopendria* ✓
 one small colony on the
 side of an old horizontal
Pisonia trunk in *Pisonia* forest.

36 *Boerhaavia*
 one colony on northeast
 end of island, in opening
 on outer dune slope.

Jan. 29 - Kwajalein Islet
 bare coral-sand roadside

37 *Euphorbia* ~~phy~~*thyrsifolia* L. ✓

38 *Terminalia samoensis* Reh. ✓
 occasional, edge of
Pisonia forest at top of
 beach.

tree 6 m. tall, fruits
 dropping off of head;
 "bop erwan" not
 eaten.

gravid, densely branched
 tree; flowers orange.

tree 7 m. tall, lactiferous;
 buds white.

slender tree 4 m. tall;
 flowers white.

immature plants
 only, badly wilted
 when collected.

large mat; leaves
 grayish green; flowers
 pink.

prostrate, grayish green.

small tree, sterile.

Jan. 28 - Ebeye Islet

34139 Padina, possibly juvenile *P. commersonii*
 with ^{spur} ₇ at about low tide level
 in passage north of islet

Jan. 31 - Kwajalein Islet
 40 *Cenchrus*
 weed patch on coral sand

In the nursery there
 is stock of: ~~Asplen~~
Asplenium nidus
Glossyphium barbadense
Hibiscus rosa-sinensis hsp.
Codiaeum variegatum
Plumeria rubra
Carica papaya (few)
Nerium spp.
Hymenocallis littoralis
Pseuderanthemum atropurpureum
Polyscias guilfoylei
P. scutellaria
Jites tripolia
Polypodium scolopendria
Guettarda speciosa (few)
Gladiolus sp.
Artocarpus altilis (1)
Alocasia macrorhiza
Polyscias fruticosa (1)
Canav indica
Zephyranthes sp.
Cocos nucifera (4)

pale brownish
 Bory (det. Taylor 1955)

decumbent at base,
 culms ascending,
 several from root crown.

soil used in the pots
 in the nursery said to
 come from Pearl Harbor.

seen planted out around
 buildings:

Terminalia catappa (1 tree)
 much *Cinnum*
Theespesia populnea
Cocos nucifera
Scorodocarpus pruriens
Messerschmidia argentea
Ochroma oppositifolia
Clivodendrum inerme
Musa sapientum ? sp.
Mirabilis jalappa ^{chlorotic}
Casuarina equisetifolia L. (1)
Euphorbia heterophylla

Desmodium sp. is scattered here and there in interior of islet. In front of the commissary and ship's store building it has been kept mowed and makes an excellent lawn, even in dry season.

Other fair lawns are mixtures of grasses, esp. *Eragrostis amabilis*, *Cynodon dactylon*, *Paspalum vaginatum*, etc.

Lawns, *Ipomoea* sp. *caprea*, *Triumfetta procumbens*, and other forms of ground cover, as well as coconut trees and other plants were severely browned by a period of high winds, averaging between 15-20 knots, between Dec. 23, 1951, and Jan. 10, 1952, followed by ~~sustained~~ about 4 days of 10-12 knot winds, then 2 weeks of 14-18 knot winds, this in a period almost without rain, until the last four days of January. The brown effect was very noticeable, even to

casual observer. After 2 rainy days everything was notably greener.

Effects of sheltering are very noticeable in reducing this damage.

Rain catchment area on airfield just being finished, 20 acres extent, will produce about 1,300,000 gal. water from 1" rainfall. Of course will not be 100% efficient. 7000 000 gal. storage capacity.

Water used for flushing toilets, etc. got from wells, some of which are quite brackish, esp. those near a very leaky salt-water ~~at~~ tank at the distilling plant.

After a hard rain, no water stands on ordinary areas, but on places such as roads, ~~at~~ parking lots, etc. which have been compacted by traffic, ~~seeds~~ large puddles stand for 24 hrs. and more.

Jan. 27 - Feb. 1

A flock of 2-3 dozen white-crowned noddies seen fishing in several places. For a couple of days they were frequently seen around the ship, anchored in the lagoon, where schools of tiny fish were to be seen at almost any time. At times the birds would rest on the water, at times fly around. When bonito would chase the small fish to the surface the noddies would fish frantically. When full they would rest on the surface.

On Ebeye, Jan. 26, 2 reef herons were seen, one white, one white with distal half of wings dark.

On Kwajalein I. Jan. 27, two reef herons, one white, one dark.

A pair of crested terns seen practically every day near pier on Kwajalein, fishing near mouth of sewer. Once seen near Ebeye in Jan.

Ebeye Islet -

The hole dug for a taro pit $\frac{1}{3}$ way from sea to lagoon beach, 5-6' deep, did not reach water, no organic matter thrown in. In white sand, grayish at surface. Surface of sides of pit apparently starting to "case harder" as it could be scarcely scratched loose by fingernails, but when broken, this easily crushed between fingers.

On porch of 97C house, Ebeye. ~~so~~ in windy weather, + 15 k., spray collects in such quantities that it constantly drips from everything.

Large red hermit crabs used by natives as fish-bait.

Jan. 23 - fast trip around periphery of atoll in small plane flying at very low altitudes; ~~so~~ counter-clockwise, from Kwajalein back. Kwajalein - scattered observations, supplemented in case of the islets just beyond Loi - to Gugeque (Berlin) ~~and in case~~ by notes made from boat in lagoon, and in case of the Eniwetoks by 2 hours or more ground observation, and in case of Enubij, by several hours ground observation.

Very few localized observations on leeward islets, as continuity was broken and islets could not be identified.

2nd islet beyond Kwajalein -
seaavola - messerschmidia scrub.

Ebeje - much Wedelia over large areas outside village.

Loi Islet - almost solidly covered by scrub - mostly seaavola.

Islet beyond Loi - sand-bar with seaavola and messerschmidia scattered sparsely over it.

Next islet - messerschmidia seaavola scrub with a few scattered coconuts.

Obovati Islet - covered by scrub of seaavola with some messerschmidia, sparse at north end, a few young coconuts, a Pemphis clump near south end.

Gugeque (Berlin) Islet - covered by scrub of seaavola and messerschmidia of even height, perhaps 3 m., with a few taller rather ragged Pandanus protruding above.

Islet north of Gugeque - mixed forest

Bigej Islet (Bibej, Bennett) - now mostly mixed forest, largely messerschmidia, to height of old tanks. Air strip still partly bare, looks about as in 1951.

Meed Islet -

coconut, with *Ochromia* forest among them.

Eniwetok Islet (inside lagoon, not on the main reef.) - islet is roughly oval, with the main reef surface covered by a large old *Pisonia* forest. A *Pisonia* covered low ridge surrounds islet on western side. A higher dune ridge is around the eastern side.

The outside slope of this is covered by ~~mixed~~ *Actinidia* sp. *Messerschmidia*, this being replaced ~~northward~~ gradually, by *Pandanus* and several other components of mixed forest, becoming, at the end of the islet almost pure *Pandanus*, except for some openings filled with young coconuts also on the end as ~~not~~ in ^{dune} patches ^{and on terrace slopes} on outer ~~shore~~ *Lepturus repens*.

Coconuts are scattered at the foot of the eastern dune slope on a narrow terrace just above high tide level, this covered otherwise by mixed forest, mainly *Messerschmidia* and *Pandanus*. The latter is all

of the small fruited variety, known to the natives as "erwan".

The *Pisonia* forest that covers the western ridge and the shallow central depression is old ^{60-75' tall} with a full canopy and large trees, trunks as much as 5' diam. (measured by MacNeil), no undergrowth except root sprouts of *Pisonia*. These locally abundant, especially around the root system of one large tree where they form a copse about 1-2 m. tall. Occasional large trees have fallen, but mostly long enough ago so that sprouts from them have already become fairly large trees. No epiphytes except lichens and one small colony of what appears to be immature *Polypodium scolopendria* (34135) growing on an old fallen but still living trunk; when collected this was in a wilted state, probably because of the rainy period just preceding.

These Pisonia forest is the nesting site and roosting place of countless birds - noddies, fairy terns, frigate birds, and probably boobies. The ground is well sprinkled with white guano. In most areas the top layer is peat, in some places sand. Under the peat, usually from 3 to 6 inches, is a layer of soft rock formed by coral sand cemented by a brown matrix that is probably phosphatic in nature (exactly as on Jems). Where there is no peat there is no rock, even though guano is abundant. Nowhere is a noticeable thickness of pure guano accumulated on the surface. The rock seems to correlate, everywhere investigated, with peat plus guano. On the west ridge the peat is quite thick and abruptly differentiated from the rock. Here, on the

surface, there is no rock, except for very low accumulations of broken chunks - probably marking the sites where trees had fallen, judging by the pile of such material around the roots of the only recently fallen tree seen.

In the shallow depression there are accumulated locally, deposits of small pebbles, up to egg size or slightly larger, of the cemented material, and in the peat layer are nodules of the same material in various stages of cementation - or of disintegration - at least various stages of hardness. Possibly the acidity of the guano plus peat tends to dissolve out the calcium carbonate of the sand. There is no obvious explanation of the surface accumulations of pebbles. Sample 49-1 is ~~surface~~ peat layer on the west ridge, sample

sample 49-2 is the cemented material from immediately beneath it. Sample 50-1 is the pebble accumulation in the depression, 50-2 the peat from nearby, with included nodules.

According to some of Marshallese, Japanese introduced ~~Varanus~~ big lizards, (*Varanus* prob.), on this islet. I saw no lizards but skinks.

Saw a number of small rats.

Jan. 27 - Eniwetok Islet

74141

common on bark of Pisonia trees.

Kwajalein Islet -
Ochrosia and Pisonia forest.

Omeleok Islet -
mixed forest

Birds seen on Eniwetok were:

Many dozen frigate birds mostly with white breasts but several all black beneath.

Hundreds of noddy's nesting high in Pisonia trees, mostly white-capped.

Many fairy terns, including several young ones.

Flock of seven golden plovers on the beach.

One brown booby flying with frigate birds.

Two whimbrels (seen by H. E. Wahl).

One sooty tern (seen by T. Amos)

next islet a tiny one - scrub covered.

Gagan Islet - vegetation has been rather destroyed.

Islets from Edjele to Ennugant.
not observed well -
seemingly covered
largely by secondary
scrub. trees with
conspicuous white
branches from air are
Pisonia.

Namur Islet -
Original vegetation
completely destroyed,
now blanketed with
Ipomoea pes-caprae
and Wedelia - the former
a bright yellow green
from air, the latter a
duller, darker green.
Large Pluchea odorata bushes.

Roi Islet - vegetation
completely destroyed,
showing little recovery,
a few mats of Ipomoea
considerable Pluchea
odorata.

Natives planted
coconuts in plane parking
about 18 mo. ago, acc.
Cdr. C. K. Brumst, now are
fair sized seedlings.
Not even in size nor too
healthy looking.
(see photo)

Enuebing Islet -
scrub tangled with
vines, scattered coconuts.

Mellu Islet -
Wedelia and vines,
scattered trees,
Guettarda, etc.
Coconuts.

Drogenai Islet
~~Boggo Islet~~ - a tiny
islet covered with
natural scrub and
forest, latter very
much wind-sheared.

~~Boggo Islet~~ -
Sparse mixed forest,
medium sized
coconuts, a conspicuous
dead or dying spot
in pandanus.

Series of gravel bars,
blackened on top,
but no vegetation.

Boggerik Islet -
Natural scrub
apparently ~~dead~~ largely
defoliated by typhoon,
mostly Pisonia (?) and
seaavola.

Bokkumamudi Islet -
Mixed forest, some
coconuts on lagoon side.

Birigren Islet -
Pisonia, badly
nipped either by typhoon
or recent dry winds,
leaves conspicuously
blackened on wind-slope
side.

Oniutto Islet -
Acavola pines,
Ochrosia scrub
sloping up to forest,
then coconuts and Pandanus
mixed.

Unnamed Islet n. of
Oniutto -
Coconuts with much
Ochrosia forest.

Black gravel bar.

Etcharai Islet -
Mixed forest.

Biggeran Islet -
Mixed forest with a
few coconuts on lagoon
beach.

Mansingalt Islet -
Mixed forest with
a few coconuts on lagoon
side.

Geiga Islet -
Gravel bar with
coconuts.

Oreba Islet -
Mixed forest coconuts
and sparse acavola
scrub.

Mijatt Islet - coconuts
and sparse scrub

String of islets bet.
Mijatt and Ebodon -
covered by very sparse
scrub with much
bare ground ~~black~~ between,
this appearing rather
black.

Islet north of this string -
coconuts.

Ebodon Islet -
Coconuts and mixed
forest with much
Pandanus. Brust says
a good copra producer.

The westward extension of the reef from Viseat to Chador has the described string of islets on the south side. Crossing it, transversally, with it, are several narrow straight linear rubble bars, looking almost like artificial road-beds.

Islets on south reef and most of those on west reef not examined carefully, & identities not clear.

stands of *Pemphis* common on these islets - have fine tessellated appearance, soft but broken - occurs in pure stands - has dull green appearance from air, while *Pisonia* has yellow-green, *Messerschmidia* a blue-green.

Coconuts are quite luxuriant on leeward islets. Some crescent shaped bars on leeward reef.

There are a few breadfruits, but not many on leeward islets.

Some stripped reef rock a little west of Eller Islet, without vegetation, showing structure.

On Ninni Islet (?) *Pemphis* shows effects of typhoon (?)

Gea Islet has old control towers along Gea into Pass. Used to control traffic into lagoon, now unused.

Ennylabegan Islet - West end a long scrub-covered spit. Strip of coconuts cleared completely across Islet about $\frac{1}{4}$ way from w. end, where radio station is located. Otherwise coconuts along whole island except east $\frac{1}{5}$ or so which is wooded, the east part of it *Pemphis*. Several clumps of *Pemphis*

along seaward side
in east 1/3, also some
large trees - unident.
scrub fringe along
whole seaward beach
except center 1/3, where
it is sparse or missing.
This fringe generally
reaches to about 1/3 the
height of the coconuts.

Embarj Islet - (see ^{p. 130}
~~half~~ p. 177)
west ~~half~~ on seaward
side covered by ~~deep~~
sea-vola scrub.
Remainder of island
with scattered coconut
trees, ~~as~~ Pandanus,
Messerschmidia,
etc. the whole covered
by a thick mat of
mixed Wedelia and
Ipomoea pes-caprae,
up to 1-2 m. deep
covering remains
of military installation
both Japanese & U.S.

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Pacific Island Disappears After H-Bomb Blast

(Continued from Page 1) wide at the top. The captain told us it was at least 15 miles straight up into the sky. The actual shape of it was like a mushroom and a funnel, or even better it looked like a head of cauliflower—lots of white smoke with three rings of smoke. Each ring was bigger. It was even close to being beautiful.

"Maybe you have noticed clouds in the sky that looked soft enough to lay. Well, these three rings looked like that, big and billowy. The clouds stayed shaped for about 10 minutes. Then started to break up and dissolve. During this period we could see parts of trees and lots of earth being dropped into the water and back on the island."

SPRINGFIELD, Mo., Nov. 11 (AP) — Another letter came to light today on a report that an atomic or hydrogen bomb had been exploded in the Pacific recently.

Seaman Second Class Roger G. Cordry, 19, of Springfield, wrote his parents that his ship was 32 miles from the blast, but still felt the heat given off. He said the explosion was great and beautiful."

Cordry's letter was published in the Springfield News and Leader.

Cordry said the explosion was on the island of Engebe "only a dot north of Eniwetok," in the Marshall Islands.

"Take a cauliflower and set it on a toad-stool and you would get a miniature picture similar to what we were honored to see," Cordry wrote. "Take your miniature picture and put an orange-red core to it and then outline each piece of the cauliflower with an orange-red pencil and you still have a small part of the colorful scene."

Lie Resigns As UN Secretary General

(Continued from Page 1)

secretary general who is the unanimous choice of the five great powers, the Security Council and of the General Assembly, may be more helpful than I can be. On the other hand, if the world situation should go from bad to worse, at least I would not want the position of secretary general to hinder in the slightest degree any hope of reaching a new understanding that would prevent world disaster."

The Russians have refused to recognize Lie as secretary general since his first five-year term ended Feb. 1, 1951. They refused to vote him an extension when the council took it up on November 1950, and the U.S. threatened to veto anyone else. This difficulty was surmounted by having the veto free assembly extended his original term to 1954.

Since then Lie has come under fire of the senate group headed by Sen. Pat McCarran which has been investigating the activities of American Communists in the U.N. Sen. Eastland (D-Miss.), a member of the committee, charged Lie with laxness in dealing with the situation. He drew an angry counterblast from the secretary general.

Associates said Lie was over-

H-BOMB BLAST

Consumes Pacific Isle

AEC SILENT ON ENIWETOK EYE-WITNESS REPORTS

LIMA, O., Nov. 11 (AP) — A mile-wide island actually disappeared in a recent atomic or hydrogen bomb explosion at Eniwetok in the Pacific, an eye-witness wrote Lima relatives.

The unidentified eye-witness didn't say he watched the first explosion of a hydrogen bomb but the Lima News, which published the letter in a copyrighted story, said "it is apparent that the explosion he felt and saw was America's first experiment with a hydrogen bomb."

The man wrote that he watched the explosion from 30.4 miles away but that heat from the bomb was 180 degrees when it reached him. He said flame two miles wide shot five miles into

the air.

A 20-mile-wide mushroom drew thousands of tons of earth into the sky. It looked like a giant cauliflower, the man said.

"About 15 minutes after shot time," the man wrote, "the island on which the bomb had been set off started to burn and it turned a brilliant red. It burned for over six hours, gradually becoming smaller.

"Within six hours, an island that once had palm trees and coconuts was now nothing. A mile-wide island had actually disappeared.

"I was watching through binoculars. At first I didn't notice but when I saw a huge chunk just seem to melt away, after

that I watched closely."

The writer drew a picture of the shape of the cloud and sent it with the letter.

The account published in Lima closely followed the details first given in a story in the Los Angeles Examiner last Saturday.

As it has before in similar cases, the Atomic Energy Commission in Washington declined any comment at all on the account published by the News.

"It was even close to being beautiful," wrote the man in his letter to Lima.

"Well, boomday is all over," the man began. "And, believe me, I wouldn't have missed it for one million dollars. It was

really a very wonderful thing and I will try to put it in words.

"I'll give you a run-down in diary form.

"1 October 1952 06:00 all hands muster. 06:30 all personnel topside. Must wear protective clothing. 07:00 shot time is now 15 minutes away. 07:05 we were told where the explosion was to be, and to turn away from this point and cover our eyes with our arms. Ten seconds after the shot we would be able to look with no damage to our eyes. 07:15 shot time."

"We didn't know the explosion had taken place but within five seconds we felt the heat waves in our back. It was hot, about

180 degrees when it hit us and were 30.4 miles away from dead center. Thirteen seconds after shot time I looked up. I could hardly believe my eyes. A flame about two miles wide was shooting five miles into the air.

"This lasted for about seven to 10 seconds. Then we saw thousands of tons of earth being drawn straight into the sky. Then the cloud began to form about 20 seconds after the shot. Then we heard the sound of the explosion and even at 30.4 miles it made my ears ring.

"By now the mushroom cloud had taken place and shape. It was about a mile wide at the bottom and at least 20 miles

(Continued on Page 2)



VOLUME VIII, NO. 270

WEDNESDAY, NOVEMBER 12, 1952

FIVE CENTS

D SOUGHT POST OFFICE

office if an Agana landowner land will lease it to the Post one will build a post office to . The lease would be for 20 years.

The Government of Guam, according to an announcement from the Governor's office yesterday, is willing to assist in securing specifications — as yet unknown — and design and also in negotiations with the Post Office Department.

Rental payments, in accord with

-- Guam Daily News --

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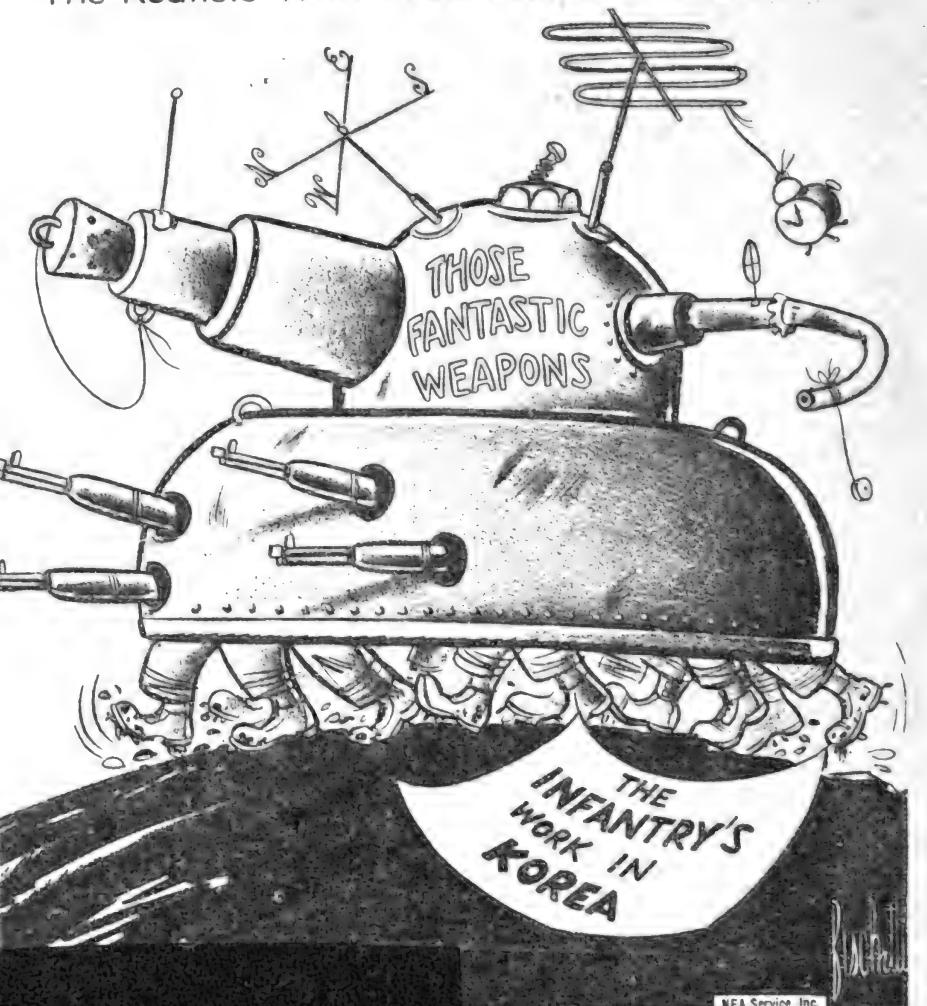
LAUDABLE JOB OF DETECTING

THE island owes a deep debt of gratitude to the two detectives who solved the \$12,000 burglary at the RCA offices. All available resources of the police

WEDNESDAY, NOVEMBER 12, 1952

GUAM DAILY NEWS

The Realists With Their Feet on the Ground



ARSON

during his seven years in office, and some way will have to be found to finance the trip.

One or two embassies already

Pacific Island Disappears After H-Bomb Blast

(Continued from Page 1) wide at the top. The captain told us it was at least 15 miles straight up into the sky. The actual shape of it was like a mushroom and a funnel, or even better it looked like a head of cauliflower—lots of white smoke with three rings of smoke. Each ring was bigger. It was even close to being beautiful.

"Maybe you have noticed clouds in the sky that looked soft enough to lay. Well, these three rings looked like that, big and billowy. The clouds stayed shaped for about 10 minutes. Then started to break up and dissolve. During this period we could see parts of trees and lots of earth being dropped into the water and back on the island."

SPRINGFIELD, Mo., Nov. 11 (AP) — Another letter came to light today on a report that an atomic or hydrogen bomb had been exploded in the Pacific recently.

Seaman Second Class Roger G. Cordry, 19, of Springfield, wrote his parents that his ship was 32 miles from the blast, but still felt the heat given off. He said the explosion was great and beautiful."

Cordry's letter was published in the Springfield News and Leader.

Cordry said the explosion was on the island of Engebe "only a dot north of Eniwetok," in the Marshall Islands.

"Take a cauliflower and set it on a toad-stool and you would get a miniature picture similar to what we were honored to see," Cordry wrote. "Take your miniature picture and put an orange-red core to it and then outline each piece of the cauliflower with an orange-red pencil and you still have a small part of the colorful scene."

Strike At Atomic Plant

Lie Resigns As UN Secretary General

(Continued from Page 1)

secretary general who is the unanimous choice of the five great powers, the Security Council and of the General Assembly, may be more helpful than I can be. On the other hand, if the world situation should go from bad to worse, at least I would not want the position of secretary general to hinder in the slightest degree any hope of reaching a new understanding that would prevent world disaster."

The Russians have refused to recognize Lie as secretary general since his first five-year term ended Feb. 1, 1951. They refused to vote him an extension when the council took it up on November 1950, and the U.S. threatened to veto anyone else. This difficulty was surmounted by having the veto free assembly extended his original term to 1954.

Since then Lie has come under fire of the senate group headed by Sen. Pat McCarran which has been investigating the activities of American Communists in the U.N. Sen. Eastland (D-Miss.), a member of the committee, charged Lie with laxness in dealing with the situation. He drew an angry counterblast from the secretary general.

Associates said Lie was over

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For a Change--I Remember

By JARED G. SMITH

Having served 14 years in the U. S. Department of Agriculture, 12 of these under Secretary James Wilson, the past and future of this branch of government has been an interesting study, since resigning in 1908. My term in the federal service began as a surprise in 1894, the circumstance being that instead of seeking a position in Washington the job sought me.

In 1888 at the mature age of 22 I acquired the B.Sc. degree at the University of Nebraska, specializing in the botany of grasses, a group of plants which most students passed up as too difficult and uninteresting.

The day after commencement I was appointed assistant to an imaginary agriculturist at the Nebraska experiment station, charged with testing grass economics while continuing botanical studies. Left to my own devices, I planted every species of grass of which seed was obtainable for a tryout, noting how each kind grew, how it withstood summer heat and dryness and winter cold, and finally, whether our cows and horses picked it out of manger rations or nosed it aside.

SMITH



* * * * *

My bulletin portraying results was reprinted in Farm Journals, Coast to Coast and translated into foreign languages. I was a "Grass Man," one of a rare breed, at that time only half a dozen in the whole United States, and the only one saying much about grass as feed.

My college professor who had steered me grassward thought a Ph.D. would look well. He finagled an M.A. for me on the basis of the original experiment station work, then sent me to the University of Berlin. Well, I didn't like Prof. Schwendener at Berlin.

On my own I tried to enroll at the University of Zurich under Dr. Stebler, a genuine grass man. In my ignorance, I arrived at Zurich in mid-semester. Stebler wouldn't register me until the autumn but I could sit in.

Student boarding houses grew tiresome when the session ended. Came that old debbil, the "curse of the wandering foot." So one fine day I packed my books and other ukana, shipped them home to Lincoln, did homage to the "Lion of Lucerne," and took ship at Genoa, Italy, for Australia—the most fortunate move I ever made.

Fate had decreed that after visiting Australian botanical gardens and universities and the very new Mildura irrigation project, an invitational kangaroo-shoot was to change my way of life. Three years later, being an assistant botanist at the Missouri Botanical Gardens, St. Louis, Fate pulled me back to Australia to acquire The Wife.

* * * * *

Craving forgiveness for this bit of autobiography, Congress then intervened by setting up a grass division in the Department of agriculture. Its director wrote that if I would take a civil service test a \$1,400 job awaited in the new Division of Agrostology.

I flunked on translating scientific French and missed the \$1,400 job. Half a year later the mail brought a commission appointing me "assistant agrostologist" at \$1,600. Needless to say, the Smiths lit out for Washington pronto.

Promotion to assistant chief at \$1,800 followed, the chief gradually unloading his executive duties on my shoulders. You see, in the Nebraska experiment station job I had been responsible for operating the 320-acre farm. In St. Louis, the director had left me in charge of Shaw's Gardens while he explored the botany of the Azores for six months.

In Washington, although administrative duties tangled with science, somehow I authored 40 bulletins about forage plants and grasses—one, on Alfalfa, more than a million copies distributed—and found time to monograph difficult genera including Boutevoua, Elymus and Sitanion.

* * * * *

Administration gradually crowded science to the wall. Secretary Wilson took me out of "grass" to be chief of "seeds and plants" at \$2,000, to boss Swingle, Carleton, David Fairchild and other great Plant Explorers, all always in financial or diplomatic trouble in the foreign countries where they were sent to snitch such rarities as date palms, macaroni wheat, seedless and wine grapes and other crops for American farms. I was office manager for as crazy a scientific venture as there was in the whole U.S. service.

So, when Congress set up the Hawaii agricultural experiment station, Secretary Wilson ordered me to Honolulu as special agent in charge, at \$2,500, fifty one years ago. In the Civil Service you go and do as ordered. Although assured that there would always be a place for me in Washington if I didn't like Hawaii, I am still here.

\$540 Levied In Traffic Fines; 1 Driver Jailed

A total of \$540 in traffic fines was levied on motorists in district court Saturday, four driver's licenses were suspended and one revoked by Judge Griffith Wight. The fines are a continuation of a crackdown on traffic violators.

A Schofield army sergeant, who fell asleep at the wheel of a U-Drive car Friday resulting in a collision with another car with total damages of \$700, was fined \$25 and given a 90-day jail sentence, 60 days of which was suspended for one year by Judge Wight.

THE SOLDIER, Rudolph Kiam-bao, 29, told the judge he had been drinking the night before and didn't remember what happened on Kalanianaole highway when the car he was driving crashed into an automobile driven by Henry K. Keola, 36, a pressman employed by The Advertiser.

Henry R. Nash, 33, of 116 Kuu-lei St., Kailua was fined \$50 and had his driver's license suspended one year for an accident which occurred March 17 on the Pali road.

POLICE SAID NASH was driving mauka on Nuuanu Ave. the night of the accident, fell asleep at the wheel, veered to the left side of the street, and crashed into another car injuring two persons. Nash told the judge he had been drinking prior to the accident.

Nickel Cup of Coffee Back

GREENVILLE, S. C. (UP)—The 5-cent cup of coffee has returned to Greenville. Several restaurants that raised the price to a dime following skyrocketing coffee prices last summer have gone back to the old price of a nickel a cup.

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PLAIDS Mercerized and

Red Cross When Truce

Truce negotiators at Panmunjom under which joint Red Cross teams will begin to render medical services to prisoners of war in Korea begins.

That news was contained in a

Sen. Nixon To Serve as M.C. At GOP Dinner



SENATOR NIXON

Senator Richard M. Nixon of California will arrive on Saturday, April 5, from Washington, D. C., to be master of ceremonies at the \$100 a plate Republican preparedness dinner, Randolph Crossley, chairman of the local party, said yesterday. The senator may be accompanied by his wife.

THE SENATOR FROM southern California has made an outstanding record for aggressive action since the election over Helen Gahagan Douglas by a majority of 680,000 votes in 1950.

He is the co-author of the Mundt-Nixon bill which was the foundation of the 1950 subversive activities control act and personally is generally credited with breaking the Hiss-Chambers espionage case.

SENATOR NIXON started his congressional career as a representative in 1946. He received both Democrat and Republican nominations for reelection in 1948.

During his service in the house he was a member of the committee on un-American activities.

Science Group Here Gets More Rockefeller Aid

Financial support from the Rockefeller Foundation to the permanent secretariat of the Pacific Science Association has almost doubled, according to an announcement made yesterday.

The foundation has granted \$23,600 to the secretariat, located at the Bishop Museum, for a two year period that began last month, compared to \$12,000 the previous two years.

The secretariat promotes and co-ordinates scientific studies and activities of the Pacific area.

It has also received \$1,000 from the Coolidge Foundation and a pledge of \$750 from the government of France.

"The fact that the grant was raised materially leads us all to hope that the foundation's interest and help in the association will become a permanent thing," said E. H. Bryan Jr., acting director of the Bishop Museum.

The Pacific Science Association was established during the first Pan-Pacific Scientific Congress held in 1920 in Honolulu.

Besides keeping members of the association informed of various activities, the secretariat is the medium through which resolutions and recommendations of the Congresses are put in action.

Loring G. Hudson is executive secretary and Miss Brenda Bishop is assistant secretary of the secretariat.

detonating the Hiroshima bomb.

Dean called attention to the fact that the concept of the employment of atomic weapons has changed radically since the Bikini tests of 1946.

Then, he said, A-bombs were considered strategic weapons to carry an attack to the industrial heartland of the enemy.

"In those days," he said, "it was fashionable to assume that a dozen or so such weapons judiciously placed could knock out any of the major powers of the world.

CONCEPT REVISED

"Since Bikini, this concept has been rather radically revised and today atomic weapons are available which can be employed by military forces in the field.

"Atomic weapons today are thought of as weapons in which tactical air forces, armies and navies, as well as strategic air forces, have a legitimate interest in and a legitimate need for."

This was assumed by many of the 300 persons in the carefully screened audience to refer to development of atomic artillery shells and special rapid-usage field weapons.

The Atomic Energy Commission chief pointed out that one instance of the changing concept was the presence at Yucca Flat tomorrow of troops and observers participating in a mock atomic attack.

"It is worth remembering," he said, "that while we are out here in the Nevada desert test of an atomic weapon there are men seated around a conference table in New York who are trying to find an effective way of eliminating such weapons from the armaments of the nations of the world."

Mrs. St. John Will Enter Race For Legislature

Mrs. Harold St. John, past president of the Hawaii Congress of Parents and Teachers, is planning to run as a Republican candidate for the legislature this year in Oahu's 4th Representative District.

Although confirming reports of her intentions, Mrs. St. John emphasized that she will not make a formal announcement until later.

"I am going to the territorial convention of the Parent-Teachers Association in Hilo next month," she said. "After that I shall resign from the PTA and announce my candidacy."

Mrs. St. John said that since the PTA is a non-partisan organization, she does not want to become a candidate formally until after she has severed her connections with it. She is now on its board of managers and is chairman of its cooperation with colleges committee.

REVERSES APPROACH

The decision represents a reverse of approach on public school affairs for the veteran PTA leader.

She has long been at the forefront of the PTA's efforts to win increased appropriations and improved facilities for the public school system from the legislature.

"I have stood on the sidelines and often been distressed at what the Legislature does for so long that I have decided I would like to be in it and find out some of the problems they have to face too," she said.

She is the mother of four children and wife of Dr. Harold St. John, professor of botany and chairman of the department of botany of the University of Hawaii.

Mrs. Bernard P. (Viola) Fisher, Mrs. Rolland W. (Gertrude), Kilburn, Mrs. George N. (Helen) Tibbets, all of Honolulu, and Mrs. Raymond (Louise) Arnold of Falls Church, Va.; three grandchildren, Tommy Fisher, Terry Fisher, and Sheri Tibbets, and a brother, LeRoy H. Benjamin, of Scranton, Pa.

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Hawaii Visitors Bureau Photo
HAKON MIELCHE

Danish Scientific Ship to Stay Four Days in Hawaii Waters

A Scandinavian author who doubles as advance man for a Danish scientific expedition has reached Honolulu on an unusual voyage.

Hakon Mielche (pronounced Milky) advises that the Danish ship, Galathea, will arrive here about March 30 or 31 for a four day stay.

It left Denmark 16 months ago on a scientific cruise and is due back there on July 1.

Besides preparing for the ship's arrival here, Mr. Mielche is conferring with the Hawaii Visitors Bureau about 12 articles on Hawaii that he is to submit, with color illustrations, to Aller Press, a publishing house for three magazines with a Scandinavian distribution of 800,000 weekly.

SCIENTIFIC EQUIPMENT

The Royal Danish marine expedition ship is a 240 foot, 1,600 ton frigate specially outfitted for scientific and deep sea investigation.

It already has scoured Indian Ocean areas, the East Indies, the seas around Australia and now is in the Tonga Islands.

Mr. Mielche said the greatest thrill of the expedition was seeing for the first time off Mindanao in the Philippines a six mile long hawser with special instruments attached bringing up specimens from 34,000 feet below the surface showing marine life and growth existing on the ocean bottom where pressure reaches 15,000 pounds per square inch.

CAUGHT STRANGE FISH

In addition, the expedition has recorded fish at levels 4,000 feet lower than ever known before and has collected 200 kinds of special fish and marine life never before recorded.

"The world below us in the sea," Mr. Mielche adds, "is as unknown as America was before Columbus."

MUCH PUBLICITY

Hawaii, its scientific qualities and its scenic potentials will also be incorporated in the expedition film, press and radio diary.

Mr. Mielche left the Galathea at New Zealand and arrived in Honolulu Monday night. He is staying at the Moana Hotel.

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